

SEQUENCE LISTING

<110> ANDERSEN, Peter
SKJOT, Rikke

<120> ~~NUCLEIC ACID FRAGMENTS AND POLYPEPTIDE FRAGMENTS~~
~~DERIVED FROM M. TUBERCULOSIS~~ *Antigens*

<130> 670001-2002.4

<140> 09/246,191 *Herewith*
<141> 1998-12-30

<150> 1997 01277
<151> 1997-10-11

<150> PCT/DK98/00438
<151> 1998-08-10

<150> PCT/DK98/00132
<151> 1998-01-04

<150> 60/070,488
<151> 1998-01-05

<160> 1998 257

<170> PatentIn Ver. 2.0

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<212> DNA
<213> Mycobacterium tuberculosis

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<211> 96
<212> PRT
<213> Mycobacterium tuberculosis

20

25

30

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35 40 45

Gly Leu Asp Val Ser Asp Arg Ile Arg Val Val Met Ser Val Pro Ala
50 55 60

Glu Arg Glu Asp Trp Ala Arg Thr His Arg Asp Leu Ile Ala Gly Glu
65 70 75 80

Ile Leu Ala Thr Asp Phe Glu Phe Ala Asp Leu Ala Asp Gly Val Ala
85 90 95

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100 105

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<211> 889
<212> DNA
<213> Mycobacterium tuberculosis

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<211> 162
<212> PRT
<213> Mycobacterium tuberculosis

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<210> 8

<211> 165

<212> PRT

<213> Mycobacterium tuberculosis

<400> 8

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Asp Leu Gly Val Ile Ser Ser Asp Gln Phe Arg Gly Lys Ser Val Leu
35 40 45

Leu Asn Ile Phe Pro Ser Val Asp Thr Pro Val Cys Ala Thr Ser Val
50 55 60

Arg Thr Phe Asp Glu Arg Ala Ala Ala Ser Gly Ala Thr Val Leu Cys
65 70 75 80

Val Ser Lys Asp Leu Pro Phe Ala Gln Lys Arg Phe Cys Gly Ala Glu
85 90 95

Gly Thr Glu Asn Val Met Pro Ala Ser Ala Phe Arg Asp Ser Phe Gly
100 105 110

Glu Asp Tyr Gly Val Thr Ile Ala Asp Gly Pro Met Ala Gly Leu Leu
115 120 125

Ala Arg Ala Ile Val Val Ile Gly Ala Asp Gly Asn Val Ala Tyr Thr
130 135 140

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Ala Ala Leu Gly Ala
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<210> 9

<211> 1054

<212> DNA

<213> Mycobacterium tuberculosis

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<210> 10

<211> 217

<212> PRT

<213> Mycobacterium tuberculosis

<400> 10

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Thr Leu Ala Leu Val Ser Ala Pro Ala Gly Gly Arg Ala Ala His Ala
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Asp Pro Cys Ser Asp Ile Ala Val Val Phe Ala Arg Gly Thr His Gln
35 40 45

Ala Ser Gly Leu Gly Asp Val Gly Glu Ala Phe Val Asp Ser Leu Thr
50 55 60

Ser Gln Val Gly Gly Arg Ser Ile Gly Val Tyr Ala Val Asn Tyr Pro
65 70 75 80

Ala Ser Asp Asp Tyr Arg Ala Ser Ala Ser Asn Gly Ser Asp Asp Ala
85 90 95

Ser Ala His Ile Gln Arg Thr Val Ala Ser Cys Pro Asn Thr Arg Ile

100	105	110
Val Leu Gly Gly Tyr Ser Gln Gly Ala Thr Val Ile Asp Leu Ser Thr		
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Ser Ala Met Pro Pro Ala Val Ala Asp His Val Ala Ala Val Ala Leu		
130	135	140
Phe Gly Glu Pro Ser Ser Gly Phe Ser Ser Met Leu Trp Gly Gly Gly		
145	150	155
Ser Leu Pro Thr Ile Gly Pro Leu Tyr Ser Ser Lys Thr Ile Asn Leu		
165	170	175
Cys Ala Pro Asp Asp Pro Ile Cys Thr Gly Gly Asn Ile Met Ala		
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195	200	205
Ala Ala Asn Arg Leu Asp His Ala Gly		
210	215	

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 <212> DNA
 <213> Mycobacterium tuberculosis

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<210> 12

<211> 182

<212> PRT

<213> *Mycobacterium tuberculosis*

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20 25 30

Asn His Ala Pro Lys Thr Val Ala Asn Phe Val Gly Leu Ala Gln Gly
35 40 45

Thr Lys Asp Tyr Ser Thr Gln Asn Ala Ser Gly Gly Pro Ser Gly Pro
50 55 60

Phe Tyr Asp Gly Ala Val Phe His Arg Val Ile Gln Gly Phe Met Ile
65 70 75 80

Gln Gly Asp Pro Thr Gly Thr Gly Arg Gly Pro Gly Tyr Lys
85 90 95

Phe Ala Asp Glu Phe His Pro Glu Leu Gln Phe Asp Lys Pro Tyr Leu
100 105 110

Leu Ala Met Ala Asn Ala Gly Pro Gly Thr Asn Gly Ser Gln Phe Phe
115 120 125

Ile Thr Val Gly Lys Thr Pro His Leu Asn Arg Arg His Thr Ile Phe
130 135 140

Gly Glu Val Ile Asp Ala Glu Ser Gln Arg Val Val Glu Ala Ile Ser
145 150 155 160

Lys Thr Ala Thr Asp Gly Asn Asp Arg Pro Thr Asp Pro Val Val Ile
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Glu Ser Ile Thr Ile Ser

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<210> 13

<211> 1060

<212> DNA

<213> *Mycobacterium tuberculosis*

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<211> 219

<212> PRT

<213> Mycobacterium tuberculosis

<400> 14

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20 25 30

Ala Cys Pro Asp Ala Glu Val Val Phe Ala Arg Gly Arg Phe Glu Pro
35 40 45

Pro Gly Ile Gly Thr Val Gly Asn Ala Phe Val Ser Ala Leu Arg Ser
50 55 60

Lys Val Asn Lys Asn Val Gly Val Tyr Ala Val Lys Tyr Pro Ala Asp
65 70 75 80

Asn Gln Ile Asp Val Gly Ala Asn Asp Met Ser Ala His Ile Gln Ser
85 90 95

Met Ala Asn Ser Cys Pro Asn Thr Arg Leu Val Pro Gly Gly Tyr Ser
100 105 110

Leu Gly Ala Ala Val Thr Asp Val Val Leu Ala Val Pro Thr Gln Met
115 120 125

Trp Gly Phe Thr Asn Pro Leu Pro Pro Gly Ser Asp Glu His Ile Ala
130 135 140

Ala Val Ala Leu Phe Gly Asn Gly Ser Gln Trp Val Gly Pro Ile Thr
145 150 155 160

Asn Phe Ser Pro Ala Tyr Asn Asp Arg Thr Ile Glu Leu Cys His Gly
165 170 175

Asp Asp Pro Val Cys His Pro Ala Asp Pro Asn Thr Trp Glu Ala Asn
180 185 190

Trp Pro Gln His Leu Ala Gly Ala Tyr Val Ser Ser Gly Met Val Asn
195 200 205

Gln Ala Ala Asp Phe Val Ala Gly Lys Leu Gln
210 215

<210> 15

<211> 1198

<212> DNA

<213> Mycobacterium tuberculosis

<400> 15

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<211> 265

<212> PRT

<213> Mycobacterium tuberculosis

<400> 16

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5

10

15

Ala Glu Ile Glu Leu Glu Ala Ala Arg Thr Phe Lys Arg His Ile Ala

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25

30

Gly Arg Arg Val Val Asp Val Ser Asp Pro Gly Gly Pro Val Thr Ala

35

40

45

Ala Val Ser Thr Gly Arg Leu Ile Asp Val Lys Ala Pro Thr Asn Gly

50

55

60

Val Ile Ala His Leu Arg Ala Ser Lys Pro Leu Val Arg Leu Arg Val

65

70

75

80

Pro Phe Thr Leu Ser Arg Asn Glu Ile Asp Asp Val Glu Arg Gly Ser

85

90

95

Lys Asp Ser Asp Trp Glu Pro Val Lys Glu Ala Ala Lys Lys Leu Ala

100

105

110

Phe Val Glu Asp Arg Thr Ile Phe Glu Gly Tyr Ser Ala Ala Ser Ile

115

120

125

Glu Gly Ile Arg Ser Ala Ser Ser Asn Pro Ala Leu Thr Leu Pro Glu

130

135

140

Asp Pro Arg Glu Ile Pro Asp Val Ile Ser Gln Ala Leu Ser Glu Leu

145

150

155

160

Arg Leu Ala Gly Val Asp Gly Pro Tyr Ser Val Leu Leu Ser Ala Asp

165

170

175

Val Tyr Thr Lys Val Ser Glu Thr Ser Asp His Gly Tyr Pro Ile Arg

180

185

190

Glu His Leu Asn Arg Leu Val Asp Gly Asp Ile Ile Trp Ala Pro Ala

195

200

205

Ile Asp Gly Ala Phe Val Leu Thr Thr Arg Gly Gly Asp Phe Asp Leu

210

215

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Gln Leu Gly Thr Asp Val Ala Ile Gly Tyr Ala Ser His Asp Thr Asp

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Ala Glu Ala Ser Val Ala Leu Ser His
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<213> Mycobacterium tuberculosis

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<213> Mycobacterium tuberculosis

<400> 18

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<210> 19

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<213> Mycobacterium tuberculosis

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<213> Mycobacterium tuberculosis

<400> 20
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1 5 10 15

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<213> Mycobacterium tuberculosis

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1 5 10 15

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<223> Xaa is unknown

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<223> Val is Val or Phe

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<213> Mycobacterium tuberculosis

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Ala Glu Ile

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<212> DNA
<213> Mycobacterium tuberculosis

<400> 24
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<210> 25
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<400> 25
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<210> 26

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agggcggta cggggcgatg ggcgtggcgg cttccaccc cgaccgcttc ggcttcgtg 540		
gctcgatgtc gggcttttg taccctgtca acaccaccac caacggtgcg atcgccggcgg 600		
gcatgcagca attcggcggt gtggacacca acggaatgtg gggagcacca cagctgggtc 660		
ggtggaaatgt gacacgaccgg tgggtgcgtcc ctagcctgtc ggcgaaaac aacacccggg 720		
tgtgggtgtg gagcccgacc aaccgggag ccacgcgtcc cggcccatg atcgccaaa 780		
ccggccggaggc gatgggtaac agccgcgtt tctacaacca gtatcgac gtcggccggc 840		
acaacggaca ctgcgttcc ccagccagcg gtgacaacgg ctggggctcg tggcgcccc 900		
agctggcgatc tatgtcgggc gatatcgatcg gtgcgtccg ctaagcgaaat tc		952
<210> 42		
<211> 299		

<212> PRT

<213> Mycobacterium tuberculosis

<400> 42

Met	Lys	Gly	Arg	Ser	Ala	Leu	Leu	Arg	Ala	Leu	Trp	Ile	Ala	Ala	Leu
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Ser Phe Gly Leu Gly Gly Val Ala Val Ala Ala Glu Pro Thr Ala Lys															
		20				25								30	
Ala Ala Pro Tyr Glu Asn Leu Met Val Pro Ser Pro Ser Met Gly Arg															
		35			40									45	
Asp Ile Pro Val Ala Phe Leu Ala Gly Gly Pro His Ala Val Tyr Leu															
		50			55									60	
Leu Asp Ala Phe Asn Ala Gly Pro Asp Val Ser Asn Trp Val Thr Ala															
		65			70				75					80	
Gly Asn Ala Met Asn Thr Leu Ala Gly Lys Gly Ile Ser Val Val Ala															
		85				90								95	
Pro Ala Gly Gly Ala Tyr Ser Met Tyr Thr Asn Trp Glu Gln Asp Gly															
		100			105									110	
Ser Lys Gln Trp Asp Thr Phe Leu Ser Ala Glu Leu Pro Asp Trp Leu															
		115			120				125						
Ala Ala Asn Arg Gly Leu Ala Pro Gly Gly His Ala Ala Val Gly Ala															
		130			135				140						
Ala Gln Gly Gly Tyr Gly Ala Met Ala Leu Ala Ala Phe His Pro Asp															
		145			150				155					160	
Arg Phe Gly Phe Ala Gly Ser Met Ser Gly Phe Leu Tyr Pro Ser Asn															
		165				170								175	
Thr Thr Thr Asn Gly Ala Ile Ala Ala Gly Met Gln Gln Phe Gly Gly															
		180			185									190	
Val Asp Thr Asn Gly Met Trp Gly Ala Pro Gln Leu Gly Arg Trp Lys															
		195			200				205						
Trp His Asp Pro Trp Val His Ala Ser Leu Leu Ala Gln Asn Asn Thr															
		210			215				220						
Arg Val Trp Val Trp Ser Pro Thr Asn Pro Gly Ala Ser Asp Pro Ala															
		225			230				235					240	

Ala Met Ile Gly Gln Thr Ala Glu Ala Met Gly Asn Ser Arg Met Phe
245 250 255

Tyr Asn Gln Tyr Arg Ser Val Gly Gly His Asn Gly His Phe Asp Phe
260 265 270

Pro Ala Ser Gly Asp Asn Gly Trp Gly Ser Trp Ala Pro Gln Leu Gly
275 280 285

Ala Met Ser Gly Asp Ile Val Gly Ala Ile Arg
290 295

<210> 43

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 43

gcaacaccccg gcatgtcgca aatcatg

27

<210> 44

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 44

gtaacaccccg gggttggccgc cgacccg

27

<210> 45

<211> 37

<212> DNA

<213> Mycobacterium tuberculosis

<400> 45

ctactaagct tggatcccta gccgccccat ttggcgg

37

<210> 46

<211> 38

<212> DNA

<213> Mycobacterium tuberculosis

<400> 46

ctactaagct tccatggtca ggtctttcg atgcttac

38

<210> 47

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 47

gtgccgcgt ccccagggtt cttatggttc gatatacctg agtttgatgg aagtccgatg 60
accagcagtc agcatacggc atggccgaaa agagtgggtt gatgtggcc gaggatgttc 120
gcccgcagat cgtggccagc gttctcgaa tcgttgtcaa cgaaggcgat cagatcgaca 180
agggcgacgt cgtggtgctg ctggagtcga tgaagatgga gatccccgtc ctggccgaaag 240
ctgcccgaac ggtcagcaag gtggcggtat cggtggcgta tgtcattcag gccggcgacc 300
ttatcgcggt gatcagctag tcgttgatag tcactcatgt ccacactcgg tgcattgtc 360
gccgaacaca cggtgctgcc gggcagcgcg gtggaccacc tgcattgcgtt ggtcgaaaa 420
tggcagctcc ttgccgactt gtcgtttgcc 450

<210> 48

<211> 71

<212> PRT

<213> Mycobacterium tuberculosis

<400> 48

Met Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Val Leu Glu Val
1 5 10 15

Val Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu
20 25 30

Leu Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly
35 40 45

Thr Val Ser Lys Val Ala Val Ser Val Gly Asp Val Ile Gln Ala Gly
50 55 60

Asp Leu Ile Ala Val Ile Ser
65 70

<210> 49

<211> 750

<212> DNA

<213> Mycobacterium tuberculosis

<400> 49

gggtaccat cgatgggtt cggttcggca ccgaggtgct aacgcacttg ctgacacact 60
gctagtcgaa aacgaggcta gtcgcaacgt cgatcacacg agaggactga ccatgacaac 120
ttcacccgac ccgtatgccg cgctgccaa gctggcggtcc ttcagcctga cgtcaacactc 180
gatcaccat gggcagccgc tggctacacc ccaggtcagc gggatcatgg gtgcgggcgg 240
ggcggatgcc agtccgcgcg tgaggtggtc gggatttccc agcgagaccc gcagcttcgc 300
ggtaaccgtc tacgaccctg atgccccac cctgtccggg ttctggcaact gggcggtggc 360
caacctgcct gccaacgtca ccgagttgcc cgagggtgtc ggcatggcc gcgaactgcc 420

gggcggggca ctgacattgg tcaacgacgc cggtatgcgc cggtatgtgg gtgcggcgcc 480
gcctcccggt catggggtgc atcgctacta cgtcgccgtc cacgcggta aggtcgaaaa 540
gctcgaccc tcggaggacg cgagtcctgc atatctggga ttcaacctgt tccagcacgc 600
gattgcacga gcggtcatct tcggcaccta cgagcagcgt tagcgctta gctgggttgc 660
cgacgtcttg ccgagccgac cgcttcgtgc agcgagccga acccgccgtc atgcagcctg 720
cgggcaatgc cttcatggat gtccttggcc 750

<210> 50

<211> 176

<212> PRT

<213> Mycobacterium tuberculosis

<400> 50

Met Thr Thr Ser Pro Asp Pro Tyr Ala Ala Leu Pro Lys Leu Pro Ser
1 5 10 15

Phe Ser Leu Thr Ser Thr Ser Ile Thr Asp Gly Gln Pro Leu Ala Thr
20 25 30

Pro Gln Val Ser Gly Ile Met Gly Ala Gly Gly Ala Asp Ala Ser Pro
35 40 45

Gln Leu Arg Trp Ser Gly Phe Pro Ser Glu Thr Arg Ser Phe Ala Val
50 55 60

Thr Val Tyr Asp Pro Asp Ala Pro Thr Leu Ser Gly Phe Trp His Trp
65 70 75 80

Ala Val Ala Asn Leu Pro Ala Asn Val Thr Glu Leu Pro Glu Gly Val
85 90 95

Gly Asp Gly Arg Glu Leu Pro Gly Gly Ala Leu Thr Leu Val Asn Asp
100 105 110

Ala Gly Met Arg Arg Tyr Val Gly Ala Ala Pro Pro Pro Gly His Gly
115 120 125

Val His Arg Tyr Tyr Val Ala Val His Ala Val Lys Val Glu Lys Leu
130 135 140

Asp Leu Pro Glu Asp Ala Ser Pro Ala Tyr Leu Gly Phe Asn Leu Phe
145 150 155 160

Gln His Ala Ile Ala Arg Ala Val Ile Phe Gly Thr Tyr Glu Gln Arg
165 170 175

<210> 51
<211> 800
<212> DNA
<213> Mycobacterium tuberculosis

<400> 51
tcatgagggtt catcggggtg atcccacgcc cgca gcccga ttcggggccgc tggcgagccg 60
gtgccgcacg ccgcctcacc agcctggtgg cggccgcctt tgccggccgc acactgttgc 120
ttaccccccgc gctggcacca cccgcatcgg cggctgccc ggatgcccag gtgggtttcg 180
cccgccgaac cggcgaacca cctggcctcg gtcgggttagg ccaagcttc gtcagttcat 240
tgccgcagca gaccaacaag agcatcggga catacggagt caactacccg gccaacggtg 300
atttcttggc cgccgcgtgac ggccgcgaacg acgccagcga ccacattcg cagatggcca 360
gcgcgtgccc ggccacgagg ttgggtgtcg gcggctactc ccagggtgcg gccgtgtcg 420
acatcgtcac cgccgcacca ctgcccggcc tcgggttac gcaaggcttg ccgcggcag 480
cggacgatca catcggcgcg atgcgcgttgc tcggaaatcc ctcggggccgc gctggcgccc 540
tgatgagcgc cctgacccct caattcgggt ccaagaccat caacctctgc aacaacggcg 600
acccgatttg ttccggacggc aaccgggtggc gagcgcaccc aggtacgtg cccgggatga 660
ccaaaccaggc ggccgcgttc gtcgcgagca ggatctaacf cgagccgccc catagattcc 720
ggctaagcaa cggctgcgc gccgcccggc cacgagtgac cgccgcgcac tggcacaccg 780
cttaccacgg ccttatgtcg 800
800

<210> 52
<211> 226
<212> PRT
<213> Mycobacterium tuberculosis

<400> 52
Met Ile Pro Arg Pro Gln Pro His Ser Gly Arg Trp Arg Ala Gly Ala
1 5 10 15

Ala Arg Arg Leu Thr Ser Leu Val Ala Ala Ala Phe Ala Ala Ala Thr
20 25 30

Leu Leu Leu Thr Pro Ala Leu Ala Pro Pro Ala Ser Ala Gly Cys Pro
35 40 45

Asp Ala Glu Val Val Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Leu
50 55 60

Gly Arg Val Gly Gln Ala Phe Val Ser Ser Leu Arg Gln Gln Thr Asn
65 70 75 80

Lys Ser Ile Gly Thr Tyr Gly Val Asn Tyr Pro Ala Asn Gly Asp Phe
85 90 95

Leu Ala Ala Ala Asp Gly Ala Asn Asp Ala Ser Asp His Ile Gln Gln

100

105

110

Met Ala Ser Ala Cys Arg Ala Thr Arg Leu Val Leu Gly Gly Tyr Ser
115 120 125

Gln Gly Ala Ala Val Ile Asp Ile Val Thr Ala Ala Pro Leu Pro Gly
130 135 140

Leu Gly Phe Thr Gln Pro Leu Pro Pro Ala Ala Asp Asp His Ile Ala
145 150 155 160

Ala Ile Ala Leu Phe Gly Asn Pro Ser Gly Arg Ala Gly Gly Leu Met
165 170 175

Ser Ala Leu Thr Pro Gln Phe Gly Ser Lys Thr Ile Asn Leu Cys Asn
180 185 190

Asn Gly Asp Pro Ile Cys Ser Asp Gly Asn Arg Trp Arg Ala His Leu
195 200 205

Gly Tyr Val Pro Gly Met Thr Asn Gln Ala Ala Arg Phe Val Ala Ser
210 215 220

Arg Ile
225

<210> 53
<211> 700
<212> DNA
<213> Mycobacterium tuberculosis

<400> 53
ctagaaagc ctttcctgag taagtattgc ctgcgttgca taccgcctt tacctgcgtt 60
aatctgcatt ttatgacaga atacgaaggc cctaagacaa aattccacgc gtaatgcag 120
gaacagattc ataacgaatt cacagcggca caacaatatg tcgcgatcgc gttttatttc 180
gacagcgaag acctgccgca gttggcgaag cattttaca gccaaaggcggt cgaggaacgca 240
aaccatgcaa tgatgctcgta gcaacacctg ctgcaccgcg accttcgtgt cgaaattccc 300
ggcgttagaca cgggtcgaaa ccagttcgac agacccccgcg aggcaactggc gctggcgctc 360
gatcaggaac gcacagtca cgcaccaggc ggtcggtcgta cagcggtggc cccgcacgag 420
ggcgattttcc tcggcgagca gttcatgcgt tggttcttgc aggaacagat cgaagagggtg 480
gccttcatgg caaccctggcgt gcgggttgcc gatcggggccg gggccaacct gttcgagcta 540
gagaacttcg tcgcacgtga agtggatgtg gcgcggccg catcaggcgc cccgcacgct 600
gccggggggcc gcctcttagat ccctggcgccg gatcagcgag tggtcccggtt cgccccggccg 660
tcttccagcc aggccttggt gcggccgggg tggtgagtac 700

<210> 54
<211> 181

<212> PRT

<213> Mycobacterium tuberculosis

<400> 54

Met Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln
1 5 10 15

Glu Gln Ile His Asn Glu Phe Thr Ala Ala Gln Gln Tyr Val Ala Ile
20 25 30

Ala Val Tyr Phe Asp Ser Glu Asp Leu Pro Gln Leu Ala Lys His Phe
35 40 45

Tyr Ser Gln Ala Val Glu Glu Arg Asn His Ala Met Met Leu Val Gln
50 55 60

His Leu Leu Asp Arg Asp Leu Arg Val Glu Ile Pro Gly Val Asp Thr
65 70 75 80

Val Arg Asn Gln Phe Asp Arg Pro Arg Glu Ala Leu Ala Leu Ala Leu
85 90 95

Asp Gln Glu Arg Thr Val Thr Asp Gln Val Gly Arg Leu Thr Ala Val
100 105 110

Ala Arg Asp Glu Gly Asp Phe Leu Gly Glu Gln Phe Met Gln Trp Phe
115 120 125

Leu Gln Glu Gln Ile Glu Glu Val Ala Leu Met Ala Thr Leu Val Arg
130 135 140

Val Ala Asp Arg Ala Gly Ala Asn Leu Phe Glu Leu Glu Asn Phe Val
145 150 155 160

Ala Arg Glu Val Asp Val Ala Pro Ala Ala Ser Gly Ala Pro His Ala
165 170 175

Ala Gly Gly Arg Leu
180

<210> 55

<211> 950

<212> DNA

<213> Mycobacterium tuberculosis

<400> 55

tgggctcggc actggctctc ccacgggtggc gcgcgtgattt ctccccacgg taggcgttgc 60

gacgcattt cttcaccgtc tatccacac taccgacatt tgctccggct ggatcgcccc 120
taaaattccg tcgtgaacaa tcgaccatc cgccctgctga catccggcag ggctggtttg 180
ggtgtccggcg cattgatcac cgccgtcgct ctgctcatcg ctttggcgc tgtttggacc 240
ccgggtgcct tcgcccgtgg atgcccggac gccaaggatca cggtcgcccg cggcaccggc 300
gagccgcccc gaatcggcg cggtggccag gcgttcgtcg actcgctgctg ccagcagact 360
ggcatggaga tcggagtata cccggtaat tacgcccaca gcccctaca gctgcacggg 420
ggagacggcg ccaacgacgc catatcgac attaagtcca tggcctcgct atgcccgaac 480
accaagctgg tcttggcg ctattcgac ggcgcaaccg tgatcgatcg tggccgggg 540
gttccgttgg gcagcatcg ctttggcagt ccgttacactg cggcatacgc agacaacgctc 600
gcagcggtcg cggcttcgg caatccgtcc aaccggccg gggatcgct gtcgagcctg 660
agcccgctat tcgggtccaa ggcgattgac ctgtgcaatc ccaccgatcc gatctgccat 720
gtggggcccg gcaacgaatt cagcggacac atcgacggct acataccac ctacaccacc 780
caggcggcta gtttgcgtc gtggggcccg cggatcgct gtcgagcctg 840
tccgtccccc agctgcccgg gtctgtcctt cagatggccg gcaactgccc accggctccc 900
aatcgctgc acggtcgtc acgctttgtc agtaagccca taaaatcgctg 950

<210> 56

<211> 262

<212> PRT

<213> Mycobacterium tuberculosis

<400> 56

Met Asn Asn Arg Pro Ile Arg Leu Leu Thr Ser Gly Arg Ala Gly Leu
1 5 10 15

Gly Ala Gly Ala Leu Ile Thr Ala Val Val Leu Leu Ile Ala Leu Gly
20 25 30

Ala Val Trp Thr Pro Val Ala Phe Ala Asp Gly Cys Pro Asp Ala Glu
35 40 45

Val Thr Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Ile Gly Arg Val
50 55 60

Gly Gln Ala Phe Val Asp Ser Leu Arg Gln Gln Thr Gly Met Glu Ile
65 70 75 80

Gly Val Tyr Pro Val Asn Tyr Ala Ala Ser Arg Leu Gln Leu His Gly
85 90 95

Gly Asp Gly Ala Asn Asp Ala Ile Ser His Ile Lys Ser Met Ala Ser
100 105 110

Ser Cys Pro Asn Thr Lys Leu Val Leu Gly Gly Tyr Ser Gln Gly Ala
115 120 125

Thr Val Ile Asp Ile Val Ala Gly Val Pro Leu Gly Ser Ile Ser Phe
130 135 140

Gly Ser Pro Leu Pro Ala Ala Tyr Ala Asp Asn Val Ala Ala Val Ala
 145 150 155 160

 Val Phe Gly Asn Pro Ser Asn Arg Ala Gly Gly Ser Leu Ser Ser Leu
 165 170 175

 Ser Pro Leu Phe Gly Ser Lys Ala Ile Asp Leu Cys Asn Pro Thr Asp
 180 185 190

 Pro Ile Cys His Val Gly Pro Gly Asn Glu Phe Ser Gly His Ile Asp
 195 200 205

 Gly Tyr Ile Pro Thr Tyr Thr Gln Ala Ala Ser Phe Val Val Gln
 210 215 220

 Arg Leu Arg Ala Gly Ser Val Pro His Leu Pro Gly Ser Val Pro Gln
 225 230 235 240

 Leu Pro Gly Ser Val Leu Gln Met Pro Gly Thr Ala Ala Pro Ala Pro
 245 250 255

 Glu Ser Leu His Gly Arg
 260

<210> 57
 <211> 1000
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 57
 cgaggagacc gacgatctgc tcgacgaaat cgacgacgtc ctcgaggaga acgccgagga 60
 cttcgccgc gcatacgtcc aaaagggcgg acagtgcacct ggccgttgcc cgatgcctg 120
 tccattaatt cactctctgg aacaccgcgt gttagacctat cttcttcac tgacttcctg 180
 cggccgcagg cgccggagtt gctgcccggca agcatcagcg gcggtgcgccc actcgcaggc 240
 ggcgatgcgc aactgcccga cggcaccacc atttgtcgcgc taaaatacccc cggcggtgtt 300
 gtcatggcgg gtgaccggcg ttgcacgcag ggcacatga tttctggcg ttagtgcgc 360
 aagggtgtata tcaccgatga ctacaccgcgt accggcatcg ctggcacggc tgcggtcgcg 420
 gttgagtttgc cccggctgtta tgccgtggaa cttgagact acgagaagct cgagggtgtg 480
 ccgcgtacgt ttgcggcaaa aatcaacccgg ctggcgattta tggtgcgtgg caatctggcg 540
 gccgcgtacgtgc agggtctgtc ggcgttgcgg ttgctggcgg gctacgacat tcatgcgtct 600
 gacccgcaga ggcgggtcg tatcgttcg ttgcacgcgg cccgcgggttgc gaaatcgag 660
 gaagagggtatcaggcggtt gggctcggtt ctcgtgttcg cgaagtcgtc gatgaagaag 720
 ttgtattcgc aggttaccga cggtgattcg gggctgcggg tggcggtcga ggcgtctac 780
 gacgcgcgcg acgacgactc cgccaccggc ggtccggacc tggtgcgggg catcttccg 840
 acggcggtga tcatcgacgc cgacggggcg gttgacgtgc cggagagccg gattgccgaa 900
 ttggcccgcg cgatcatcgaa aagccgttcg ggtgcggata cttcggctc cgatggcggt 960

gagaagttag tttccgtat ttcatctcgc ctgagcaggc 1000

<210> 58
<211> 291
<212> PRT
<213> Mycobacterium tuberculosis

<400> 58

Met Thr Trp Pro Leu Pro Asp Arg Leu Ser Ile Asn Ser Leu Ser Gly
1 5 10 15

Thr Pro Ala Val Asp Leu Ser Ser Phe Thr Asp Phe Leu Arg Arg Gln
20 25 30

Ala Pro Glu Leu Leu Pro Ala Ser Ile Ser Gly Gly Ala Pro Leu Ala
35 40 45

Gly Gly Asp Ala Gln Leu Pro His Gly Thr Thr Ile Val Ala Leu Lys
50 55 60

Tyr Pro Gly Gly Val Val Met Ala Gly Asp Arg Arg Ser Thr Gln Gly
65 70 75 80

Asn Met Ile Ser Gly Arg Asp Val Arg Lys Val Tyr Ile Thr Asp Asp
85 90 95

Tyr Thr Ala Thr Gly Ile Ala Gly Thr Ala Ala Val Ala Val Glu Phe
100 105 110

Ala Arg Leu Tyr Ala Val Glu Leu Glu His Tyr Glu Lys Leu Glu Gly
115 120 125

Val Pro Leu Thr Phe Ala Gly Lys Ile Asn Arg Leu Ala Ile Met Val
130 135 140

Arg Gly Asn Leu Ala Ala Met Gln Gly Leu Leu Ala Leu Pro Leu
145 150 155 160

Leu Ala Gly Tyr Asp Ile His Ala Ser Asp Pro Gln Ser Ala Gly Arg
165 170 175

Ile Val Ser Phe Asp Ala Ala Gly Gly Trp Asn Ile Glu Glu Glu Gly
180 185 190

Tyr Gln Ala Val Gly Ser Gly Ser Leu Phe Ala Lys Ser Ser Met Lys
195 200 205

Lys Leu Tyr Ser Gln Val Thr Asp Gly Asp Ser Gly Leu Arg Val Ala

210

215

220

Val Glu Ala Leu Tyr Asp Ala Ala Asp Asp Asp Ser Ala Thr Gly Gly
225 230 235 240

Pro Asp Leu Val Arg Gly Ile Phe Pro Thr Ala Val Ile Ile Asp Ala
245 250 255

Asp Gly Ala Val Asp Val Pro Glu Ser Arg Ile Ala Glu Leu Ala Arg
260 265 270

Ala Ile Ile Glu Ser Arg Ser Gly Ala Asp Thr Phe Gly Ser Asp Gly
275 280 285

Gly Glu Lys

290

<210> 59

<211> 900

<212> DNA

<213> Mycobacterium tuberculosis

<400> 59

ttggcccgcg cgatcatcg aagccgttcg ggtgcggata ctttcggctc cgatggcggt 60
gagaagttag tttccgtat ttcatctcg ctgagcaggc gatgcgcgag cgacgcgagt 120
tggcgcgtaa gggcattgcg cgggcacaaa gcgtggtggc gctggctat gccgggtggtg 180
tgctgttcgt cgcggagaat ccgtcgcggc cgctgcagaa gatcagttag ctctacgatc 240
gggtgggttt tgcggctgcg ggcaagttca acgagttcga caatttgcgc cgccggcgaaa 300
tccagttcgc cgacacccgc ggttacgcct atgaccgtcg tgacgtcactg ggtcggcagt 360
tggccaatgt ctacgcgcag actctaggca ccacatccac cgaacaggcc aagccctacg 420
aggtttagtt gtgtgtggcc gaggtggcgc attacggcga gacgaaacgc cctgagttgt 480
atcgttattac ctacgacggg tcgatcgcc acgagccgca tttcggtgtt atggggcgca 540
ccacggagcc gatgcacaac ggcgtcaaag agtctgtatgc cgagaacgcc agcctgaccg 600
acgcctgcg tatcgccgtc gctgcattgc gggccggcag tgccgacacc tcgggtggtg 660
atcaacccac ccttggcgtg gccagcttag aggtggccgt tctcgatgcc aaccggccac 720
ggcgcgcgtt ccggcgcata accggctccg ccctgcaagc gttgctggta gaccagaaaa 780
gcccgcagtc tgacggcgaat tcgtcgggtt gagtccgaaaa gtcgcacgcg tgcgtggac 840
cccgctgcga cgttaactgc gcctaaccgc ggctcgacgc gtcgcggcc gtcctgactt 900

<210> 60

<211> 248

<212> PRT

<213> Mycobacterium tuberculosis

<400> 60

Met Ser Phe Pro Tyr Phe Ile Ser Pro Glu Gln Ala Met Arg Glu Arg

1

5

10

15

Ser Glu Leu Ala Arg Lys Gly Ile Ala Arg Ala Lys Ser Val Val Ala
20 25 30

Leu Ala Tyr Ala Gly Gly Val Leu Phe Val Ala Glu Asn Pro Ser Arg
35 40 45

Ser Leu Gln Lys Ile Ser Glu Leu Tyr Asp Arg Val Gly Phe Ala Ala
50 55 60

Ala Gly Lys Phe Asn Glu Phe Asp Asn Leu Arg Arg Gly Gly Ile Gln
65 70 75 80

Phe Ala Asp Thr Arg Gly Tyr Ala Tyr Asp Arg Arg Asp Val Thr Gly
85 90 95

Arg Gln Leu Ala Asn Val Tyr Ala Gln Thr Leu Gly Thr Ile Phe Thr
100 105 110

Glu Gln Ala Lys Pro Tyr Glu Val Glu Leu Cys Val Ala Glu Val Ala
115 120 125

His Tyr Gly Glu Thr Lys Arg Pro Glu Leu Tyr Arg Ile Thr Tyr Asp
130 135 140

Gly Ser Ile Ala Asp Glu Pro His Phe Val Val Met Gly Gly Thr Thr
145 150 155 160

Glu Pro Ile Ala Asn Ala Leu Lys Glu Ser Tyr Ala Glu Asn Ala Ser
165 170 175

Leu Thr Asp Ala Leu Arg Ile Ala Val Ala Ala Leu Arg Ala Gly Ser
180 185 190

Ala Asp Thr Ser Gly Gly Asp Gln Pro Thr Leu Gly Val Ala Ser Leu
195 200 205

Glu Val Ala Val Leu Asp Ala Asn Arg Pro Arg Arg Ala Phe Arg Arg
210 215 220

Ile Thr Gly Ser Ala Leu Gln Ala Leu Leu Val Asp Gln Glu Ser Pro
225 230 235 240

Gln Ser Asp Gly Glu Ser Ser Gly
245

<211> 1560

<212> DNA

<213> Mycobacterium tuberculosis

<400> 61

gagtcattgc ctggtcggcg tcattccgt a ctagtcggtt gtcggacttg acctactggg 60
tcaggccgac gagcactcga ccattaggtt agggccgtg acccaactatg acgtcgctcg 120
tctcgagcc ggtcccggcg ggtatgtcgc ggcgattcgc gccgcacagc tcggcctgag 180
caactgcaatc gtcgaaccca agtactgggg cggagtatgc ctcaatgtcg gctgtatccc 240
atccaaggcg ctgttgcgc acgcccgaact ggtccacatc ttcaccaagg acgccaaagc 300
atttggcatc agcggcgagg tgaccttcga ctacggcatc gcctatgacc gcagccgaaa 360
ggtagccgag ggcagggtgg ccggtgtgca cttcctgtatg aagaagaaca agatcaccga 420
gatccacggg tacggcacat ttgccgacgc caacacgtt gttgggtgatc tcaacgacgg 480
cggtacagaa tcggtcacgt tcgacaacgc catcatcgcg accggcagta gcacccggct 540
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agagctgcgg aaatcgatca ttattgcgg agctggtgcc attggcatgg agttcggcta 660
cgtgctgaag aactacggcg ttgacgtgac catcggtggaa ttccctccgc gggcgctgccc 720
caacgaggaac gccgatgtgt ccaaggagat cgagaagcag ttcaaaaaagc tgggtgtcac 780
gatccctgacc gccacgaagg tcgagtcacat cgccgatggc gggtcgcagg tcaccgtgac 840
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<210> 62

<211> 464

<212> PRT

<213> Mycobacterium tuberculosis

<400> 62

Met Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr

1 5 10 15

Val Ala Ala Ile Arg Ala Ala Gln Leu Gly Leu Ser Thr Ala Ile Val

20 25 30

Glu Pro Lys Tyr Trp Gly Gly Val Cys Leu Asn Val Gly Cys Ile Pro

35 40 45

Ser Lys Ala Leu Leu Arg Asn Ala Glu Leu Val His Ile Phe Thr Lys

50

55

60

Asp Ala Lys Ala Phe Gly Ile Ser Gly Glu Val Thr Phe Asp Tyr Gly		
65	70	75
Ile Ala Tyr Asp Arg Ser Arg Lys Val Ala Glu Gly Arg Val Ala Gly		
85	90	95
Val His Phe Leu Met Lys Lys Asn Lys Ile Thr Glu Ile His Gly Tyr		
100	105	110
Gly Thr Phe Ala Asp Ala Asn Thr Leu Leu Val Asp Leu Asn Asp Gly		
115	120	125
Gly Thr Glu Ser Val Thr Phe Asp Asn Ala Ile Ile Ala Thr Gly Ser		
130	135	140
Ser Thr Arg Leu Val Pro Gly Thr Ser Leu Ser Ala Asn Val Val Thr		
145	150	155
Tyr Glu Glu Gln Ile Leu Ser Arg Glu Leu Pro Lys Ser Ile Ile Ile		
165	170	175
Ala Gly Ala Gly Ala Ile Gly Met Glu Phe Gly Tyr Val Leu Lys Asn		
180	185	190
Tyr Gly Val Asp Val Thr Ile Val Glu Phe Leu Pro Arg Ala Leu Pro		
195	200	205
Asn Glu Asp Ala Asp Val Ser Lys Glu Ile Glu Lys Gln Phe Lys Lys		
210	215	220
Leu Gly Val Thr Ile Leu Thr Ala Thr Lys Val Glu Ser Ile Ala Asp		
225	230	235
Gly Gly Ser Gln Val Thr Val Thr Lys Asp Gly Val Ala Gln		
245	250	255
Glu Leu Lys Ala Glu Lys Val Leu Gln Ala Ile Gly Phe Ala Pro Asn		
260	265	270
Val Glu Gly Tyr Gly Leu Asp Lys Ala Gly Val Ala Leu Thr Asp Arg		
275	280	285
Lys Ala Ile Gly Val Asp Asp Tyr Met Arg Thr Asn Val Gly His Ile		
290	295	300
Tyr Ala Ile Gly Asp Val Asn Gly Leu Leu Gln Leu Ala His Val Ala		

305	310	315	320
Glu Ala Gln Gly Val Val Ala Ala Glu Thr Ile Ala Gly Ala Glu Thr			
325	330	335	
Leu Thr Leu Gly Asp His Arg Met Leu Pro Arg Ala Thr Phe Cys Gln			
340	345	350	
Pro Asn Val Ala Ser Phe Gly Leu Thr Glu Gln Gln Ala Arg Asn Glu			
355	360	365	
Gly Tyr Asp Val Val Val Ala Lys Phe Pro Phe Thr Ala Asn Ala Lys			
370	375	380	
Ala His Gly Val Gly Asp Pro Ser Gly Phe Val Lys Leu Val Ala Asp			
385	390	395	400
Ala Lys His Gly Glu Leu Leu Gly Gly His Leu Val Gly His Asp Val			
405	410	415	
Ala Glu Leu Leu Pro Glu Leu Thr Leu Ala Gln Arg Trp Asp Leu Thr			
420	425	430	
Ala Ser Glu Leu Ala Arg Asn Val His Thr His Pro Thr Met Ser Glu			
435	440	445	
Ala Leu Gln Glu Cys Phe His Gly Leu Val Gly His Met Ile Asn Phe			
450	455	460	

<210> 63

<211> 550

<212> DNA

<213> Mycobacterium tuberculosis

<400> 63

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tgcggccgct

550

<210> 64

<211> 130

<212> PRT

<213> Mycobacterium tuberculosis

<400> 64

Met Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met
1 5 10 15

Thr Leu Leu Glu Leu Ser Asp Phe Val Lys Lys Phe Glu Glu Thr Phe
20 25 30

Glu Val Thr Ala Ala Ala Pro Val Ala Val Ala Ala Gly Ala Ala
35 40 45

Pro Ala Gly Ala Ala Val Glu Ala Ala Glu Glu Gln Ser Glu Phe Asp
50 55 60

Val Ile Leu Glu Ala Ala Gly Asp Lys Lys Ile Gly Val Ile Lys Val
65 70 75 80

Val Arg Glu Ile Val Ser Gly Leu Gly Leu Lys Glu Ala Lys Asp Leu
85 90 95

Val Asp Gly Ala Pro Lys Pro Leu Leu Glu Lys Val Ala Lys Glu Ala
100 105 110

Ala Asp Glu Ala Lys Ala Lys Leu Glu Ala Ala Gly Ala Thr Val Thr
115 120 125

Val Lys

130

<210> 65

<211> 900

<212> DNA

<213> Mycobacterium tuberculosis

<400> 65

tgaacgccat cgggtccaac gaacgcagcg ctacctgatc accaccgggt ctgttagggc 60
tcttccccag gtcgtacagt cggccatgg ccattgaggt ttcgggttttg cgggttttca 120
ccgattcaga cggaaatttc ggtaatccgc tgggggtat caacgccagc aaggtcgaac 180
accgcacag gcagcagctg gcagccaaat cggctacag cgaaaccata ttcgtcgatc 240
ttcccagccc cggctcaacc accgcacacg ccaccatcca tactccccgc accgaaattc 300
cggtcgccgg acacccgacc gtgggagcgt cctgggtggct gcgcgagagg gggacgccaa 360

ttaacacgct gcaggtgccg gccggcatcg tccaggttag ctaccacgg gatctcaccg 420
ccatcagcgc cgcctcgaa tggcacccg agttcgccat ccacgacctg gattcaactg 480
atgcgcttgc cgccggcgc cccggcact ttccggacga catcgccac tacctctgga 540
cctggaccga cgcctccgct ggctcgctgc gcgcggcat gtttgcgc 600
tcaccgaaga cgaagcgacc ggtgccgcgg ccatccggat taccgattac ctcagccgtg 660
acctcaccat cacccaggc aaaggatcg tgcacac cacctggagt cccgagggt 720
gggttcgggt agccggcga gttgtcagcg acggtgtggc acaactcgac tgacgttagag 780
ctcagcgctg ccgatgcaac acggcggcaa ggtgatcctg caggggttgc ccgaccgcgc 840
gcatctgcaa cgagtacgaa agctcgctgc cgtcgatgcg gtaggaacgg tcaagggcgg 900

<210> 66

<211> 228

<212> PRT

<213> *Mycobacterium tuberculosis*

<400> 66

Met Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly
1 5 10 15

Asn Phe Gly Asn Pro Leu Gly Val Ile Asn Ala Ser Lys Val Glu His
20 25 30

Arg Asp Arg Gln Gln Leu Ala Ala Gln Ser Gly Tyr Ser Glu Thr Ile
35 40 45

Phe Val Asp Leu Pro Ser Pro Gly Ser Thr Thr Ala His Ala Thr Ile
50 55 60

His Thr Pro Arg Thr Glu Ile Pro Phe Ala Gly His Pro Thr Val Gly
65 70 75 80

Ala Ser Trp Trp Leu Arg Glu Arg Gly Thr Pro Ile Asn Thr Leu Gln
85 90 95

Val Pro Ala Gly Ile Val Gln Val Ser Tyr His Gly Asp Leu Thr Ala
100 105 110

Ile Ser Ala Arg Ser Glu Trp Ala Pro Glu Phe Ala Ile His Asp Leu
115 120 125

Asp Ser Leu Asp Ala Leu Ala Ala Asp Pro Ala Asp Phe Pro Asp
130 135 140

Asp Ile Ala His Tyr Leu Trp Thr Trp Thr Asp Arg Ser Ala Gly Ser
145 150 155 160

Leu Arg Ala Arg Met Phe Ala Ala Asn Leu Gly Val Thr Glu Asp Glu
165 170 175

Ala Thr Gly Ala Ala Ala Ile Arg Ile Thr Asp Tyr Leu Ser Arg Asp
180 185 190

Leu Thr Ile Thr Gln Gly Lys Gly Ser Leu Ile His Thr Thr Trp Ser
195 200 205

Pro Glu Gly Trp Val Arg Val Ala Gly Arg Val Val Ser Asp Gly Val
210 215 220

Ala Gln Leu Asp
225

<210> 67
<211> 500
<212> DNA
<213> Mycobacterium tuberculosis

<400> 67
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acaacctctc agagtgcgct 500

<210> 68
<211> 139
<212> PRT
<213> Mycobacterium tuberculosis

<400> 68
Met Gly Ala Gly Pro Ala Met Gly Ile Gly Gly Val Gly Gly Leu Gly
1 5 10 15

Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly Leu
20 25 30

Gly Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly
35 40 45

L Leu Asp Ala Ala Gly Ser Gly Glu Gly Ser Pro Ala Ala Ile Gly
50 55 60

Ile Gly Val Gly
65 70 75 80

Ala Asp Thr Asn Arg Ser Asp Arg Ser Ser Asp Val Gly Gly Gly Val
85 90 95

Trp Pro Leu Gly Phe Gly Arg Phe Ala Asp Ala Gly Ala Gly Gly Asn
100 105 110

Glu Ala Leu Gly Ser Lys Asn Gly Cys Ala Ala Ile Ser Ser Gly Ala
115 120 125

Ser Ile Pro Ser Cys Gly Arg Lys Ser Leu Ser
130 135

<210> 69

<211> 2050

<212> DNA

<213> Mycobacterium tuberculosis

<400> 69

agcgcactct gagagggttgt catggcgcc gactacgaca agctttccg gccgcacgaa 60
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tccgacgacc tgcggagcg gttcggtcg gccccggcgc cgccacccccc acccccacct 240
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Ser His Gly Pro His Gln Pro Arg Arg Thr Ala Pro Ala Pro Pro Trp
180 185 190

Ala Lys Met Pro Ile Gly Glu Pro Pro Pro Ala Pro Ser Arg Pro Ser
195 200 205

Ala Ser Pro Ala Glu Pro Pro Thr Arg Pro Ala Pro Gln His Ser Arg
210 215 220

Arg Ala Arg Arg Gly His Arg Tyr Arg Thr Asp Thr Glu Arg Asn Val
225 230 235 240

Gly Lys Val Ala Thr Gly Pro Ser Ile Gln Ala Arg Leu Arg Ala Glu
245 250 255

Glu Ala Ser Gly Ala Gln Leu Ala Pro Gly Thr Glu Pro Ser Pro Ala
260 265 270

Pro Leu Gly Gln Pro Arg Ser Tyr Leu Ala Pro Pro Thr Arg Pro Ala
275 280 285

Pro Thr Glu Pro Pro Pro Ser Pro Ser Pro Gln Arg Asn Ser Gly Arg
290 295 300

Arg Ala Glu Arg Arg Val His Pro Asp Leu Ala Ala Gln His Ala Ala
305 310 315 320

Ala Gln Pro Asp Ser Ile Thr Ala Ala Thr Thr Gly Gly Arg Arg Arg
325 330 335

Lys Arg Ala Ala Pro Asp Leu Asp Ala Thr Gln Lys Ser Leu Arg Pro
340 345 350

Ala Ala Lys Gly Pro Lys Val Lys Lys Val Lys Pro Gln Lys Pro Lys
355 360 365

Ala Thr Lys Pro Pro Lys Val Val Ser Gln Arg Gly Trp Arg His Trp
370 375 380

Val His Ala Leu Thr Arg Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys
385 390 395 400

Tyr Glu Leu Asp Leu His Ala Arg Val Arg Arg Asn Pro Arg Gly Ser
405 410 415

Tyr Gln Ile Ala Val Val Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr
420 425 430

Leu Thr Ala Ala Leu Gly Ser Thr Leu Ala Gln Val Arg Ala Asp Arg
435 440 445

Ile Leu Ala Leu Asp Ala Asp Pro Gly Ala Gly Asn Leu Ala Asp Arg
450 455 460

Val Gly Arg Gln Ser Gly Ala Thr Ile Ala Asp Val Leu Ala Glu Lys
465 470 475 480

Glu Leu Ser His Tyr Asn Asp Ile Arg Ala His Thr Ser Val Asn Ala
485 490 495

Val Asn Leu Glu Val Leu Pro Ala Pro Glu Tyr Ser Ser Ala Gln Arg
500 505 510

Ala Leu Ser Asp Ala Asp Trp His Phe Ile Ala Asp Pro Ala Ser Arg
515 520 525

Phe Tyr Asn Leu Val Leu Ala Asp Cys Gly Ala Gly Phe Phe Asp Pro
530 535 540

Leu Thr Arg Gly Val Leu Ser Thr Val Ser Gly Val Val Val Val Ala
545 550 555 560

Ser Val Ser Ile Asp Gly Ala Gln Gln Ala Ser Val Ala Leu Asp Trp
565 570 575

Leu Arg Asn Asn Gly Tyr Gln Asp Leu Ala Ser Arg Ala Cys Val Val
580 585 590

Ile Asn His Ile Met Pro Gly Glu Pro Asn Val Ala Val Lys Asp Leu
595 600 605

Val Arg His Phe Glu Gln Gln Val Gln Pro Gly Arg Val Val Val Met
610 615 620

Pro Trp Asp Arg His Ile Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu
625 630 635 640

Leu Asp Pro Ile Tyr Lys Arg Lys Val Leu Glu Leu Ala Ala Ala Leu
645 650 655

Ser Asp Asp Phe Glu Arg Ala Gly Arg Arg
660 665

<211> 1890

<212> DNA

<213> Mycobacterium tuberculosis

<400> 71

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<210> 72

<211> 591

<212> PRT

<213> Mycobacterium tuberculosis

<400> 72

Met Thr Ala Glu Pro Glu Val Arg Thr Leu Arg Glu Val Val Leu Asp

1

5

10

15

Gln Leu Gly Thr Ala Glu Ser Arg Ala Tyr Lys Met Trp Leu Pro Pro

275

280

285

Arg Phe Asp Gly Val His Ser Ala Asp Asn Leu Val Glu Ala Ile Thr
 290 295 300

 Ala Gly Val Thr Gln Ile Ala Ser Gln His Thr Glu Gln Ala Pro Pro
 305 310 315 320

 Val Arg Val Leu Pro Glu Arg Ile His Leu His Glu Leu Asp Pro Asn
 325 330 335

 Pro Pro Gly Pro Glu Ser Asp Tyr Arg Thr Arg Trp Glu Ile Pro Ile
 340 345 350

 Gly Leu Arg Glu Thr Asp Leu Thr Pro Ala His Cys His Met His Thr
 355 360 365

 Asn Pro His Leu Leu Ile Phe Gly Ala Ala Lys Ser Gly Lys Thr Thr
 370 375 380

 Ile Ala His Ala Ile Ala Arg Ala Ile Cys Ala Arg Asn Ser Pro Gln
 385 390 395 400

 Gln Val Arg Phe Met Leu Ala Asp Tyr Arg Ser Gly Leu Leu Asp Ala
 405 410 415

 Val Pro Asp Thr His Leu Leu Gly Ala Gly Ala Ile Asn Arg Asn Ser
 420 425 430

 Ala Ser Leu Asp Glu Ala Ala Gln Ala Leu Ala Val Asn Leu Lys Lys
 435 440 445

 Arg Leu Pro Pro Thr Asp Leu Thr Thr Ala Gln Leu Arg Ser Arg Ser
 450 455 460

 Trp Trp Ser Gly Phe Asp Val Val Leu Leu Val Asp Asp Trp His Met
 465 470 475 480

 Ile Val Gly Ala Ala Gly Gly Met Pro Pro Met Ala Pro Leu Ala Pro
 485 490 495

 Leu Leu Pro Ala Ala Ala Asp Ile Gly Leu His Ile Ile Val Thr Cys
 500 505 510

 Gln Met Ser Gln Ala Tyr Lys Ala Thr Met Asp Lys Phe Val Gly Ala
 515 520 525

 Ala Phe Gly Ser Gly Ala Pro Thr Met Phe Leu Ser Gly Glu Lys Gln

530

535

540

Glu Phe Pro Ser Ser Glu Phe Lys Val Lys Arg Arg Pro Pro Gly Gln
545 550 555 560

Ala Phe Leu Val Ser Pro Asp Gly Lys Glu Val Ile Gln Ala Pro Tyr
565 570 575

Ile Glu Pro Pro Glu Glu Val Phe Ala Ala Pro Pro Ser Ala Gly
580 585 590

<210> 73

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 73

Asp Pro Val Asp Asp Ala Phe Ile Ala Lys Leu Asn Thr Ala Gly
1 5 10 15

<210> 74

<211> 14

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (14)

<223> Xaa is unknown

<400> 74

Asp Pro Val Asp Ala Ile Ile Asn Leu Asp Asn Tyr Gly Xaa
1 5 10

<210> 75

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (5)

<223> Xaa is unknown

<400> 75

Ala Glu Met Lys Xaa Phe Lys Asn Ala Ile Val Gln Glu Ile Asp
1 5 10 15

<210> 76
<211> 14
<212> PRT
<213> Mycobacterium tuberculosis

<220>
<221> VARIANT
<222> (3)
<223> Ala is Ala or Gln

<220>
<221> VARIANT
<222> (7)
<223> Thr is Gly or Thr

<220>
<221> UNSURE
<222> (11)
<223> Xaa is unknown

<400> 76
Val Ile Ala Gly Met Val Thr His Ile His Xaa Val Ala Gly
1 5 10

<210> 77
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 77
Thr Asn Ile Val Val Leu Ile Lys Gln Val Pro Asp Thr Trp Ser
1 5 10 15

<210> 78
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 78
Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly
1 5 10 15

<210> 79
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 79
Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met
1 5 10 15

<210> 80
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<220>
<221> VARIANT
<222> (4)
<223> Asp is Asp or Glu

<400> 80
Asp Pro Ala Asp Ala Pro Asp Val Pro Thr Ala Ala Gln Leu Thr
1 5 10 15

<210> 81
<211> 50
<212> PRT
<213> Mycobacterium tuberculosis

<400> 81
Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu
20 25 30

Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr
35 40 45

Val Ser
50

<210> 82
<211> 15
<212> PRT

<213> Mycobacterium tuberculosis

<400> 82

Thr	Thr	Ser	Pro	Asp	Pro	Tyr	Ala	Ala	Leu	Pro	Lys	Leu	Pro	Ser
1					5					10				15

<210> 83

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 83

Thr	Glu	Tyr	Glu	Gly	Pro	Lys	Thr	Lys	Phe	His	Ala	Leu	Met	Gln
1					5					10				15

<210> 84

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 84

Thr	Thr	Ile	Val	Ala	Leu	Lys	Tyr	Pro	Gly	Gly	Val	Val	Met	Ala
1					5					10				15

<210> 85

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (10)

<223> Xaa is unknown

<220>

<221> UNSURE

<222> (15)

<223> Xaa is unknown

<400> 85

Ser	Phe	Pro	Tyr	Phe	Ile	Ser	Pro	Glu	Xaa	Ala	Met	Arg	Glu	Xaa
1					5					10				15

<210> 86

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 86

Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr
1 5 10 15

<210> 87

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 87

agcccggtaa tcgagttcgg gcaatgctga ccatcggtt tgtttccggc tataaccgaa 60
cggttgtgt acggataca aatacaggga ggaaagaagt aggcaaattgg aaaaaatgtc 120
acatgatccg atcgctgccg acattggcac gcaagtgagc gacaacgctc tgcacggcgt 180
gacggccggc tcgacggcgc tgacgtcggt gacggggctg gttcccgccg gggccgatga 240
ggtctccgccc caagcggcga cggcggtcac atcggagggc atccaattgc tggcttccaa 300
tgcatcgccc caagaccagc tccaccgtgc gggcgaagcg gtccaggacg tcgcccgcac 360
ctattcgcaa atcgacgacg gcgccgcccc cgcttcgccc taataggccc ccaacacatc 420
ggagggagtg atcaccatgc tgtggcacgc 450

<210> 88

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 88

Met Glu Lys Met Ser His Asp Pro Ile Ala Ala Asp Ile Gly Thr Gln
1 5 10 15

Val Ser Asp Asn Ala Leu His Gly Val Thr Ala Gly Ser Thr Ala Leu
20 25 30

Thr Ser Val Thr Gly Leu Val Pro Ala Gly Ala Asp Glu Val Ser Ala
35 40 45

Gln Ala Ala Thr Ala Phe Thr Ser Glu Gly Ile Gln Leu Leu Ala Ser
50 55 60

Asn Ala Ser Ala Gln Asp Gln Leu His Arg Ala Gly Glu Ala Val Gln
65 70 75 80

Asp Val Ala Arg Thr Tyr Ser Gln Ile Asp Asp Gly Ala Ala Gly Val
85 90 95

Phe Ala

<210> 89

<211> 460

<212> DNA

<213> Mycobacterium tuberculosis

<400> 89

gcaaccggct tttcgatcg ctgagacatc agcggcgtgc gggtaacgaa cccacctgcg 60
ccaggttagcg actccgcgcg cagcaggccc gcgcggcgcg tggggcctga tccaccagcc 120
agcggatggt tcgacagcgg actgggtccg agcaggccca tctgcgcggc ttccctcgtcg 180
gctgggttcg cggccggcgt gccgcccacc tggctgaaca acgacgtcac ctgctgcagc 240
ggctgggtca gctgctgcat cggggccgctc atctcaccca gttggccgag ggctctggta 300
gccgcggcgcg gcaactggcc aaccgggttt gagctgccag gggagggcat tccgaagatc 360
gggttcgtcg tgctctggct cggccggga tcaaggatcg acgccatcg ctgcagcttc 420
tcgaaaagcg tgttaaccgc ggtctcgccc tgtagacct 460

<210> 90

<211> 139

<212> PRT

<213> Mycobacterium tuberculosis

<400> 90

Met Arg Val Asn Asp Pro Pro Ala Pro Gly Ser Asp Ser Ala Arg Ser
1 5 10 15

Arg Pro Ala Pro Ala Leu Gly Pro Asp Pro Pro Ala Ser Gly Trp Phe
20 25 30

Asp Ser Gly Leu Val Pro Ser Arg Pro Ile Cys Ala Ala Ser Ser Ser
35 40 45

Ala Gly Leu Pro Pro Pro Val Pro Pro Thr Trp Leu Asn Asn Asp Val
50 55 60

Thr Cys Cys Ser Gly Trp Val Ser Cys Cys Ile Gly Pro Leu Ile Ser
65 70 75 80

Pro Ser Trp Pro Arg Val Trp Val Ala Ala Gly Gly Asn Trp Pro Thr
85 90 95

Gly Val Glu Leu Pro Gly Glu Gly Ile Pro Lys Ile Gly Phe Val Val
100 105 110

Leu Trp Leu Ala Pro Gly Ser Arg Ile Asp Ala Ile Gly Ser Ser Phe
115 120 125

Ser Lys Ser Val Leu Thr Ala Val Ser Ala Trp
130 135

<210> 91
<211> 1200
<212> DNA
<213> Mycobacterium tuberculosis

<400> 91
taataggccc ccaacacatc ggagggagtg atcaccatgc tgtggcacgc aatgccaccg 60
gagctaaata ccgcacggct gatggccggc gcgggtccgg ctccaatgct tgcggccggcc 120
gcgggatggc agacgcttgc ggcggctctg gacgctcagg ccgtcgagtt gaccgcgcgc 180
ctgaactctc tgggagaagc ctggactgga ggtggcagcg acaaggcgct tgcggctgca 240
acgcccgtatgg tggctctggct acaaaccgcg tcaacacagg ccaagacccg tgcgatgcag 300
gcgacggcgc aagccgcggc atacacccag gccatggcca cgacgcccgc gctgccggag 360
atcgccgcaca accacatcac ccaggccgctc cttacggcca ccaacttctt cggtatcaac 420
acgatcccgta tcgcgttgac cgagatggat tatttcatttc gtatgtggaa ccaggcagcc 480
ctggcaatgg aggtctacca ggccgagacc gcgggttaaca cgctttcga gaagctcgag 540
ccgatggcgt cgatccttga tcccggcgcg agccagagca cgacgaaccc gatcttcgga 600
atgccctccc ctggcagctc aacaccgggtt ggcaggttgc cgccggcggc taccagacc 660
ctcgcccaac tgggtgagat gagcggcccg atgcagcagc tgacccagcc gctgcagcag 720
gtgacgtcgt tgttcagcca ggtggcggc accggcggcg gcaacccagc cgacgaggaa 780
gccgcgcaga tggcctgct cggcaccagt ccgctgtcga accatccgct ggctggtgaa 840
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tcgttgaccc gcacccgcgt gatgtctcag ctgatcgaaa agccgggttgc cccctcggtg 960
atgcccggcgg ctgctgcccgg atcgtcggcg acgggtggcg ccgctccggt gggtgccggga 1020
gcgcggcgcg agggtgcgcgca atccggcggc tccaccaggc cgggtctggc cgccgcggca 1080
ccgctcgccgc aggagcgtga agaagacgac gaggacgact gggacgaaga ggacgactgg 1140
tgagctcccg taatgacaac agacttcccg gccacccggg ccggaaagact tgccaacatt 1200

<210> 92
<211> 371
<212> PRT
<213> Mycobacterium tuberculosis

<400> 92
Met Ile Thr Met Leu Trp His Ala Met Pro Pro Glu Leu Asn Thr Ala
1 5 10 15

Arg Leu Met Ala Gly Ala Gly Pro Ala Pro Met Leu Ala Ala Ala Ala
20 25 30

Gly Trp Gln Thr Leu Ser Ala Ala Leu Asp Ala Gln Ala Val Glu Leu
35 40 45

Thr Ala Arg Leu Asn Ser Leu Gly Glu Ala Trp Thr Gly Gly Gly Ser

50

55

60

Asp	Lys	Ala	Leu	Ala	Ala	Thr	Pro	Met	Val	Val	Trp	Leu	Gln	Thr
65				70						75				80

Ala Ser Thr Gln Ala Lys Thr Arg Ala Met Gln Ala Thr Ala Gln Ala
85 90 95

Ala Ala Tyr Thr Gln Ala Met Ala Thr Thr Pro Ser Leu Pro Glu Ile
 100 105 110

Gly Ile Asn Thr Ile Pro Ile Ala Leu Thr Glu Met Asp Tyr Phe Ile
130 135 140

Arg Met Trp Asn Gln Ala Ala Leu Ala Met Glu Val Tyr Gln Ala Glu
145 150 155 160

Thr Ala Val Asn Thr Leu Phe Glu Lys Leu Glu Pro Met Ala Ser Ile
` 165 170 175

Leu Asp Pro Gly Ala Ser Gln Ser Thr Thr Asn Pro Ile Phe Gly Met
 180 185 190

Pro Ser Pro Gly Ser Ser Thr Pro Val Gly Gln Leu Pro Pro Ala Ala
195 200 205

Thr Gln Thr Leu Gly Gln Leu Gly Glu Met Ser Gly Pro Met Gln Gln
210 215 220

Leu Thr Gln Pro Leu Gln Gln Val Thr Ser Leu Phe Ser Gln Val Gly
225 . 230 . 235 . 240

Gly Thr Gly Gly Asn Pro Ala Asp Glu Glu Ala Ala Gln Met Gly
245 250 255

Leu Leu Gly Thr Ser Pro Leu Ser Asn His Pro Leu Ala Gly Gly Ser
260 265 270

Gly Pro Ser Ala Gly Ala Gly Leu Leu Arg Ala Glu Ser Leu Pro Gly
275 280 285

Ala Gly Gly Ser Leu Thr Arg Thr Pro Leu Met Ser Gln Leu Ile Glu
290 295 300

Lys Pro Val Ala Pro Ser Val Met Pro Ala Ala Ala Ala Gly Ser Ser

305 310 315 320

Ala Thr Gly Gly Ala Ala Pro Val Gly Ala Gly Ala Met Gly Gln Gly
325 330 335

Ala Gln Ser Gly Gly Ser Thr Arg Pro Gly Leu Val Ala Pro Ala Pro
340 345 350

Leu Ala Gln Glu Arg Glu Glu Asp Asp Glu Asp Asp Trp Asp Glu Glu
355 360 365

Asp Asp Trp
370

<210> 93

<211> 1000

<212> DNA

<213> Mycobacterium tuberculosis

<400> 93

gacgcgacac agaaatcctt aaggccggcg gccaaaggggc cgaaggtgaa gaaggtgaag 60
ccccagaaac cgaaggccac gaagccgccc aaagtggtgt cgccagcgcgg ctggcgacat 120
tgggtgcattt cgttgcacgcg aatcaacctg ggccctgtcac ccgacgagaa gtacgagctg 180
gacctgcacg ctcgagtcgg ccgcaatccc cgggggtcgt atcagatcgc cgtcgtcggt 240
ctcaaagggt gggctggcaa aaccacgctg acagcagcgt tggggtcgac gttggctcag 300
gtgcggggccg accggatcct ggctctagac gcggatccag gcgcggaaa cctcgccgat 360
cggttagggc gacaatcggg cgcgaccatc gctgatgtgc ttgcagaaaa agagctgtcg 420
caactacaacg acatccgcgc acacactagc gtcaatgcgg tcaatctgga agtgctgccg 480
gcaccggaaat acagctcggc gcagcgcgcg ctcagcgcacg ccgactggca tttcatcgcc 540
gatcctgcgt cgaggtttta caacctcgtc ttggctgatt gtggggccgg cttcttcgac 600
ccgctgaccc gcggcgtgct gtccacgggt tccgggtgtc tggtcggtc aagtgtctca 660
atcgacggcg cacaacaggc gtcggtcgcg ttggactggc tgcgcaacaa cggttaccaa 720
gatttggcga gccgcgcgt cgtggtcatc aatcacatca tgccgggaga acccaatgtc 780
gcagttaaag acctggcgcg gcatttcgaa cagcaagttc aaccggccg ggtcgtggc 840
atgccgtggg acaggcacat tgcggccgga accgagattt cactcgactt gctcgaccct 900
atctacaacg gcaaggtcct cgaattggcc gcagcgctat ccgacgattt cgagagggct 960
ggacgtcggtt gagcgcaccc gctgttgctg ctggccctac 1000

<210> 94

<211> 308

<212> PRT

<213> Mycobacterium tuberculosis

<400> 94

Met Lys Lys Val Lys Pro Gln Lys Pro Lys Ala Thr Lys Pro Pro Lys

1

5

10

15

Val Val Ser Gln Arg Gly Trp Arg His Trp Val His Ala Leu Thr Arg
20 25 30

Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys Tyr Glu Leu Asp Leu His
35 40 45

Ala Arg Val Arg Arg Asn Pro Arg Gly Ser Tyr Gln Ile Ala Val Val
50 55 60

Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr Leu Thr Ala Ala Leu Gly
65 70 75 80

Ser Thr Leu Ala Gln Val Arg Ala Asp Arg Ile Leu Ala Leu Asp Ala
85 90 95

Asp Pro Gly Ala Gly Asn Leu Ala Asp Arg Val Gly Arg Gln Ser Gly
100 105 110

Ala Thr Ile Ala Asp Val Leu Ala Glu Lys Glu Leu Ser His Tyr Asn
115 120 125

Asp Ile Arg Ala His Thr Ser Val Asn Ala Val Asn Leu Glu Val Leu
130 135 140

Pro Ala Pro Glu Tyr Ser Ser Ala Gln Arg Ala Leu Ser Asp Ala Asp
145 150 155 160

Trp His Phe Ile Ala Asp Pro Ala Ser Arg Phe Tyr Asn Leu Val Leu
165 170 175

Ala Asp Cys Gly Ala Gly Phe Phe Asp Pro Leu Thr Arg Gly Val Leu
180 185 190

Ser Thr Val Ser Gly Val Val Val Ala Ser Val Ser Ile Asp Gly
195 200 205

Ala Gln Gln Ala Ser Val Ala Leu Asp Trp Leu Arg Asn Asn Gly Tyr
210 215 220

Gln Asp Leu Ala Ser Arg Ala Cys Val Val Ile Asn His Ile Met Pro
225 230 235 240

Gly Glu Pro Asn Val Ala Val Lys Asp Leu Val Arg His Phe Glu Gln
245 250 255

Gln Val Gln Pro Gly Arg Val Val Val Met Pro Trp Asp Arg His Ile
260 265 270

Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu Leu Asp Pro Ile Tyr Lys
275 280 285

Arg Lys Val Leu Glu Leu Ala Ala Ala Leu Ser Asp Asp Phe Glu Arg
290 295 300

Ala Gly Arg Arg
305

<210> 95
<211> 34
<212> DNA
<213> Mycobacterium tuberculosis

<400> 95
aagagtagat ctatgatggc cgaggatgtt cgcg 34

<210> 96
<211> 27
<212> DNA
<213> Mycobacterium tuberculosis

<400> 96
cggcgacgac ggatccctacc gcgtcgg 27

<210> 97
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 97
ccttgggaga tctttggacc ccggttgc 28

<210> 98
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 98
gacgagatct tatgggctta ctgac 25

<210> 99
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 99

ccccccagat ctgcaccacc ggcacatggcg ggc 33

<210> 100
<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 100
gcggcggatc cgttgcttag ccgg 24

<210> 101
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 101
ccggctgaga tctatgacag aatacgaagg gc 32

<210> 102
<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 102
ccccgccagg gaactagagg cggc 24

<210> 103
<211> 38
<212> DNA
<213> Mycobacterium tuberculosis

<400> 103
ctgcccagat ctaccaccat tgtcgcgtg aaataccc 38

<210> 104
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 104
cgccatggcc ttacgcgcctt actcg 25

<210> 105
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 105

ggcggagatc tgtgagttt ccgtattca tc 32
<210> 106
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 106
cgcgtcgagc catggtagg cgcatg 25
<210> 107
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 107
gaggaagatc tatgacaact tcacccgacc cg 32
<210> 108
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 108
catgaagcca tggcccgag gctgcattg 28
<210> 109
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 109
ggccgagatc tgtgacccac tatgacgtcg tcg 33
<210> 110
<211> 36
<212> DNA
<213> Mycobacterium tuberculosis

<400> 110
ggcgccccatg gtcagaaatt gatcatgtgg ccaacc 36
<210> 111
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 111

ccgggagatc tatggcaaag ctctccaccg acg 33

<210> 112
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 112
cgctgggcag agctacttga cggtgacggt gg 32

<210> 113
<211> 36
<212> DNA
<213> Mycobacterium tuberculosis

<400> 113
ggcccagatc tatggccatt gaggtttcgg tgttgc 36

<210> 114
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 114
cgccgtgttg catggcagcg ctgagc 26

<210> 115
<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 115
ggacgttcaa gcgacacatc gccg 24

<210> 116
<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 116
cagcacgaac ggcgcgtcga tggc 24

<210> 117
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 117

acagatctgt gacggacatg aaccgg 26

<210> 118
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 118
tttccatgg tcacggggccc ccggta 28

<210> 119
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 119
acagatctgt gcccattggca cagata 26

<210> 120
<211> 27
<212> DNA
<213> Mycobacterium tuberculosis

<400> 120
ttaagcttc taggcggccca gcgcggc 27

<210> 121
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 121
acagatctgc gcatgcggat ccgtgt 26

<210> 122
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 122
tttccatgg tcatccggcg tgatcgag 28

<210> 123
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 123

acagatctgt aatggcagac tgtgat 26

<210> 124
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 124
ttttccatgg tcaggagatg gtgatcga 28

<210> 125
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 125
acagatctgc cggctacccc ggtgcc 26

<210> 126
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 126
ttttccatgg ctattgcagc tttccggc 28

<210> 127
<211> 50
<212> PRT
<213> Mycobacterium tuberculosis

<400> 127
Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu
20 25 30

Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr
35 40 45

Val Ser
50

<210> 128
<211> 49
<212> PRT

<213> Mycobacterium tuberculosis

<400> 128

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu
20 25 30

Glu Ser Met Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr Val
35 40 45

Ser

<210> 129

<211> 50

<212> PRT

<213> Mycobacterium tuberculosis

<400> 129

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu
20 25 30

Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr
35 40 45

Val Ser

50

<210> 130

<211> 33

<212> DNA

<213> Mycobacterium tuberculosis

<400> 130

ccgggagatc tatggcaaag ctctccacccg acg

33

<210> 131

<211> 32

<212> DNA

<213> Mycobacterium tuberculosis

<400> 131
cgctggcag agctacttga cggtgacggt gg 32

<210> 132
<211> 36
<212> DNA
<213> Mycobacterium tuberculosis

<400> 132
ggcgccggca agcttgccat gacagagcag cagtgg 36

<210> 133
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 133
cgaactcgcc ggatcccgtg tttcgc 26

<210> 134
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 134
ggcaaccgcg agatctttct cccggccggg gc 32

<210> 135
<211> 27
<212> DNA
<213> Mycobacterium tuberculosis

<400> 135
ggcaagcttg ccggcgctta acgaact 27

<210> 136
<211> 30
<212> DNA
<213> Mycobacterium tuberculosis

<400> 136
ggacccagat ctatgacaga gcagcagtgg 30

<210> 137
<211> 47
<212> DNA
<213> Mycobacterium tuberculosis

<400> 137
ccggcagccc cggccgggag aaaagcttg cgaacatccc agtgacg

47

<210> 138
<211> 44
<212> DNA
<213> Mycobacterium tuberculosis

<400> 138
gttcgcaaag cttttctccc ggccggggct gccggtcgag tacc

44

<210> 139
<211> 20
<212> DNA
<213> Mycobacterium tuberculosis

<400> 139
ccttcggtgtt atcccgtag

20

<210> 140
<211> 450
<212> DNA
<213> Mycobacterium tuberculosis

<400> 140
tggcgctgtc accgaggaac ctgtcaatgt cgtcgagcag tactgaaccg ttccgagaaa 60
ggccagcatg aacgtcaccg tatccattcc gaccatcctg cggccccaca ccggcggcca 120
gaagagtgtc tcggccagcg gcgataacctt gggtgcgtc atcagcgacc tggaggccaa 180
ctattcgggc atttccgagc gcctgatgga cccgtttcc ccaggttaatg tgcaccgctt 240
cgtgaacatc tacgtcaacg acgaggacgt gcggttctcc ggccgcttgg ccacccgcat 300
cgctgacggt gactcggtca ccattctccc cggcggtggcc ggtgggtgag cggagcacat 360
gacacgatac gactcgctgt tgcaggcctt gggcaacacg ccgctgggttgcgcg 420
attgtcgcca cgctggatg acggcgaga 450

<210> 141
<211> 93
<212> PRT
<213> Mycobacterium tuberculosis

<400> 141
Met Asn Val Thr Val Ser Ile Pro Thr Ile Leu Arg Pro His Thr Gly
1 5 10 15

Gly Gln Lys Ser Val Ser Ala Ser Gly Asp Thr Leu Gly Ala Val Ile
20 25 30

Ser Asp Leu Glu Ala Asn Tyr Ser Gly Ile Ser Glu Arg Leu Met Asp
35 40 45

Pro Ser Ser Pro Gly Lys Leu His Arg Phe Val Asn Ile Tyr Val Asn
50 55 60

Asp Glu Asp Val Arg Phe Ser Gly Gly Leu Ala Thr Ala Ile Ala Asp
65 70 75 80

Gly Asp Ser Val Thr Ile Leu Pro Ala Val Ala Gly Gly
85 90

<210> 142

<211> 480

<212> DNA

<213> Mycobacterium tuberculosis

<400> 142

ggtgttcccg cggccggcta tgacaacagt caatgtgcat gacaagttac aggtattagg 60
tccagggttca acaaggagac aggcaacatg gcaacacgtt ttatgacgga tccgcacgct 120
atgcgggaca tggcgggccc ttttgaggtg cacgcccaga cggtgagga cgaggctcgc 180
cggatgtggg cgtccgcgca aaacatctcg ggcgcgggct ggagtggcat ggccgaggcg 240
acctcgctag acaccatggc ccagatgaat caggcgttc gcaacatcgt gaacatgctg 300
cacggggtgc gtgacgggct ggttcgcgac gccaacaact acgagcagca agagcaggcc 360
tcccagcaga tcctcagcag ctaacgtcag ccgctgcagc acaatactt tacaagcgaa 420
ggagaacagg ttcgatgacc atcaactatc agttcggtga tgtcgacgct catggcgcca 480

<210> 143

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 143

Met Ala Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Ala Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu

85

90

95

Ser Ser

<210> 144

<211> 940

<212> DNA

<213> Mycobacterium tuberculosis

<400> 144

gccccagtc tcgatcgct catcgccctc accggccgccc agccgaccgc aggccacgtg 60
tccgccacct aacgaaaggta gatcatgcc caagagaagc gaatacaggc aaggcacgcc 120
gaactgggtc gacccatcaga ccaccgatca gtccggccgc aaaaagtctt acacatcggt 180
gttcggctgg gtttacgacg acaacccgtt ccccccggagc ggtgggggtctt attccatggc 240
cacgctgaac ggcgaagccg tggccgcatcg cgcaccgtat ccccccgggtg caccggaggg 300
gatgccgccc atcttgaaca cctatatcgat ggtggacgac gtcgatgcgg tggggacaa 360
ggtgtgtgtccc gggggccggc aggtgtatgtat gccggccatcg gacatcgccg atggccggccg 420
gatgtcggttc atcaccgatc cgaccggcgc tgccgtggc ctatggcagg ccaatcgcca 480
catcgagcg acgttggtca acgagacggg cacgtctatc tggAACGAAC tgctcacgg 540
caagccggat ttggcgttag cggttctacga ggctgtgggtt ggcttcaccc actcgagcat 600
ggagatagct gggggccaga actatcggtt gctcaaggcc ggcgacgcgg aagtcggcgg 660
ctgtatggaa cccggatgc cccgggtgtcc gaatcattgg cacgtctact ttgcgggtgg 720
tgacggcgcac gccacggcgg ccaaagccgc cgccagggc ggccaggtca ttgcggaaacc 780
ggctgacatt ccgtcggtgg gccgggttcgc cgtgttgc gatccgcagg ggcgatctt 840
cagtgtgttg aagccgcac cgccggcata gggagcatcc cggccaggcc cgccggccgg 900
cagattcgga gaatgtttaga agctggccgc ggcggccgg 940

<210> 145

<211> 261

<212> PRT

<213> Mycobacterium tuberculosis

<400> 145

Met Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp
1 5 10 15

Leu Gln Thr Thr Asp Gln Ser Ala Ala Lys Lys Phe Tyr Thr Ser Leu
20 25 30

Phe Gly Trp Gly Tyr Asp Asp Asn Pro Val Pro Gly Gly Gly Val
35 40 45

Tyr Ser Met Ala Thr Leu Asn Gly Glu Ala Val Ala Ala Ile Ala Pro
50 55 60

Met Pro Pro Gly Ala Pro Glu Gly Met Pro Pro Ile Trp Asn Thr Tyr

65	70	75	80
Ile Ala Val Asp Asp Val Asp Ala Val Val Asp Lys Val Val Pro Gly			
85		90	95
Gly Gly Gln Val Met Met Pro Ala Phe Asp Ile Gly Asp Ala Gly Arg			
100		105	110
Met Ser Phe Ile Thr Asp Pro Thr Gly Ala Ala Val Gly Leu Trp Gln			
115		120	125
Ala Asn Arg His Ile Gly Ala Thr Leu Val Asn Glu Thr Gly Thr Leu			
130		135	140
Ile Trp Asn Glu Leu Leu Thr Asp Lys Pro Asp Leu Ala Leu Ala Phe			
145	150	155	160
Tyr Glu Ala Val Val Gly Leu Thr His Ser Ser Met Glu Ile Ala Ala			
165		170	175
Gly Gln Asn Tyr Arg Val Leu Lys Ala Gly Asp Ala Glu Val Gly Gly			
180		185	190
Cys Met Glu Pro Pro Met Pro Gly Val Pro Asn His Trp His Val Tyr			
195	200		205
Phe Ala Val Asp Asp Ala Asp Ala Thr Ala Ala Lys Ala Ala Ala Ala			
210	215		220
Gly Gly Gln Val Ile Ala Glu Pro Ala Asp Ile Pro Ser Val Gly Arg			
225	230	235	240
Phe Ala Val Leu Ser Asp Pro Gln Gly Ala Ile Phe Ser Val Leu Lys			
245		250	255
Pro Ala Pro Gln Gln			
260			

<210> 146

<211> 280

<212> DNA

<213> Mycobacterium tuberculosis

<400> 146

ccgaaaggcg gtgcacgc a cccagaagaa aaggaaagat cgagaaatgc cacaggAAC 60
 tggtaagtgg ttcaacgcgg agaagggtt cggcttatac gcccccaag acggttccgc 120
 ggatgtattt gtccactaca cggagatcca gggAACGGGC ttccgcaccc ttgaagaaaa 180

ccagaaggc gagttcgaga tcggccacag ccctaagggc ccccaggcca ccggagtccg 240
ctcgctctga gttacccccc cgagcagacg caaaaagccc 280

<210> 147

<211> 67

<212> PRT

<213> Mycobacterium tuberculosis

<400> 147

Met Pro Gln Gly Thr Val Lys Trp Phe Asn Ala Glu Lys Gly Phe Gly
1 5 10 15

Phe Ile Ala Pro Glu Asp Gly Ser Ala Asp Val Phe Val His Tyr Thr
20 25 30

Glu Ile Gln Gly Thr Gly Phe Arg Thr Leu Glu Glu Asn Gln Lys Val
35 40 45

Glu Phe Glu Ile Gly His Ser Pro Lys Gly Pro Gln Ala Thr Gly Val
50 55 60

Arg Ser Leu

65

<210> 148

<211> 540

<212> DNA

<213> Mycobacterium tuberculosis

<400> 148

atcggtcgat atcgagaacc ccggccggta tcagaacgcg ccagagcgca aaccttata 60
acttcgtgtc ccaaatgtga cgaccatgga ccaagggtcc tgagatgaac ctacggcgcc 120
atcagaccct gacgctgcga ctgctggcgg catccgcggg cattctcagc gcccggcct 180
tcgcccggcc agcacaggca aaccccgctg acgacgcgtt catgcgcgcg ctgaacaatg 240
ccggcgtcaa ctacggcgat ccggtcgacg ccaaagcgct gggtcagtcc gtctgcccga 300
tcctggccga gccccggcggg tcgttaaca ccgcggtagc cagcgttgtg ggcgcgcggcc 360
aaggcatgtc ccaggacatg ggcacaaacct tcaccagtat cgcgatttcg atgtactgcc 420
cctcgggtat ggcagacgtc gccagcggca acctgcccggc cctgccagac atgcccggggc 480
tgcccgggtc ctaggcgtgc gcggctccta gcggatccct aacggatcga tcgtggatgc 540

<210> 149

<211> 129

<212> PRT

<213> Mycobacterium tuberculosis

<400> 149

Met Asn Leu Arg Arg His Gln Thr Leu Thr Leu Arg Leu Leu Ala Ala

1

5

10

15

Ser Ala Gly Ile Leu Ser Ala Ala Ala Phe Ala Ala Pro Ala Gln Ala
20 25 30

Asn Pro Val Asp Asp Ala Phe Ile Ala Ala Leu Asn Asn Ala Gly Val
35 40 45

Asn Tyr Gly Asp Pro Val Asp Ala Lys Ala Leu Gly Gln Ser Val Cys
50 55 60

Pro Ile Leu Ala Glu Pro Gly Gly Ser Phe Asn Thr Ala Val Ala Ser
65 70 75 80

Val Val Ala Arg Ala Gln Gly Met Ser Gln Asp Met Ala Gln Thr Phe
85 90 95

Thr Ser Ile Ala Ile Ser Met Tyr Cys Pro Ser Val Met Ala Asp Val
100 105 110

Ala Ser Gly Asn Leu Pro Ala Leu Pro Asp Met Pro Gly Leu Pro Gly
115 120 125

Ser

<210> 150

<211> 400

<212> DNA

<213> Mycobacterium tuberculosis

<400> 150

atagtttggg gaagggtgtcc ataaatgagg ctgtcggtga ccgcattgag cgccgggtgta 60
ggcgccgtgg caatgtcggt gaccgtcggg gccgggggtcg cctccgcaga tcccggtggac 120
gcggtcatta acaccacactg caattacggg caggttagtag ctgcgcctcaa cgcgacggat 180
ccggggggctg ccgcacagtt caacgcctca ccgggtggcgc agtccttattt gcgcatttc 240
ctcgccgcac cgcccacctca ggcgcgtgcc atggccgcgc aattgcaagc tgtgcccgggg 300
gcggcacagt acatcgccct tgtcgagtcg gttgcccggct cctgcaacaa ctattaagcc 360
catgcggggcc ccatccccgcg acccggcatc gtcgcccgggg 400

<210> 151

<211> 110

<212> PRT

<213> Mycobacterium tuberculosis

<400> 151

Met Arg Leu Ser Leu Thr Ala Leu Ser Ala Gly Val Gly Ala Val Ala

1

5

10

15

Met Ser Leu Thr Val Gly Ala Gly Val Ala Ser Ala Asp Pro Val Asp
 20 25 30

Ala Val Ile Asn Thr Thr Cys Asn Tyr Gly Gln Val Val Ala Ala Leu
 35 40 45

Asn Ala Thr Asp Pro Gly Ala Ala Ala Gln Phe Asn Ala Ser Pro Val
 50 55 60

Ala Gln Ser Tyr Leu Arg Asn Phe Leu Ala Ala Pro Pro Pro Gln Arg
 65 70 75 80

Ala Ala Met Ala Ala Gln Leu Gln Ala Val Pro Gly Ala Ala Gln Tyr
 85 90 95

Ile Gly Leu Val Glu Ser Val Ala Gly Ser Cys Asn Asn Tyr
 100 105 110

<210> 152

<211> 990

<212> DNA

<213> Mycobacterium tuberculosis

<400> 152

aatagaata tcgctgtcg gttcaaaac gtgtgaccga ggttccgcag tcgagcgctg 60
 cggccgcct tcgaggagga cgaaccacag tcatgacgaa catcgtggc ctgatcaagc 120
 aggtcccaga tacctggtcg gagcgcaagc tgaccgacgg cgatttcacg ctggaccgcg 180
 aggccgcga cgccgtgctg gacgagatca acgagcgcgc cgtggaggaa gcgcctacaga 240
 ttccggagaa agaggccgcc gacggcatcg aagggtcggt aaccgtgctg acggcgggcc 300
 ccgagcgcgc caccgaggcg atccgcaagg cgctgtcgat gggtgccgac aaggccgtcc 360
 acctaaagga cgacggcatg cacggctcgg acgtcatcca aaccgggtgg gctttggcgc 420
 gcgcgttggg caccatcgag ggcaccgagc tggtgatcgc aggcaacgaa tcgaccgacg 480
 gggtgtggcg tgccgtgccc gccatcatcg ccgagtacct gggcctgcgc cagctcaccc 540
 acctgcgc当地 agtgcgtatc gagggcggca agatcaccgg cgagcgtgag accgatgagg 600
 gcgttattcac cctcgaggcc acgctgccc cggtgatcgc cgtgaacgag aagatcaacg 660
 agccgcgc当地 cccgtccttc aaaggcatca tggccgcca gaagaaggaa gttaccgtgc 720
 tgaccctggc cgagatcggt gtcgagagcg acgaggtggg gctggccaac gccggatcca 780
 ccgtgctggc gtcgacgccc aaaccggcca agactgccgg ggagaaggtc accgacgagg 840
 gtgaaggcgg caaccagatc gtgcagtacc tggttgcccc gaaaatcatc taagacatac 900
 gcacctccca aagacgagag cgatataacc catggctgaa gtactggtgc tcgttgagca 960
 cgctgaaggc cgcttaaaga aggtcagcgc 990

<210> 153

<211> 266

<212> PRT

<213> *Mycobacterium tuberculosis*

<400> 153

Met	Thr	Asn	Ile	Val	Val	Leu	Ile	Lys	Gln	Val	Pro	Asp	Thr	Trp	Ser
1				5						10					15
Glu	Arg	Lys	Leu	Thr	Asp	Gly	Asp	Phe	Thr	Leu	Asp	Arg	Glu	Ala	Ala
				20				25						30	
Asp	Ala	Val	Leu	Asp	Glu	Ile	Asn	Glu	Arg	Ala	Val	Glu	Glu	Ala	Leu
					35			40					45		
Gln	Ile	Arg	Glu	Lys	Glu	Ala	Ala	Asp	Gly	Ile	Glu	Gly	Ser	Val	Thr
					50			55				60			
Val	Leu	Thr	Ala	Gly	Pro	Glu	Arg	Ala	Thr	Glu	Ala	Ile	Arg	Lys	Ala
					65			70			75			80	
Leu	Ser	Met	Gly	Ala	Asp	Lys	Ala	Val	His	Leu	Lys	Asp	Asp	Gly	Met
					85				90				95		
His	Gly	Ser	Asp	Val	Ile	Gln	Thr	Gly	Trp	Ala	Leu	Ala	Arg	Ala	Leu
					100			105				110			
Gly	Thr	Ile	Glu	Gly	Thr	Glu	Leu	Val	Ile	Ala	Gly	Asn	Glu	Ser	Thr
					115			120				125			
Asp	Gly	Val	Gly	Gly	Ala	Val	Pro	Ala	Ile	Ile	Ala	Glu	Tyr	Leu	Gly
					130			135				140			
Leu	Pro	Gln	Leu	Thr	His	Leu	Arg	Lys	Val	Ser	Ile	Glu	Gly	Lys	
					145			150			155			160	
Ile	Thr	Gly	Glu	Arg	Glu	Thr	Asp	Glu	Gly	Val	Phe	Thr	Leu	Glu	Ala
					165				170			175			
Thr	Leu	Pro	Ala	Val	Ile	Ser	Val	Asn	Glu	Lys	Ile	Asn	Glu	Pro	Arg
					180				185			190			
Phe	Pro	Ser	Phe	Lys	Gly	Ile	Met	Ala	Ala	Lys	Lys	Glu	Val	Thr	
					195			200				205			
Val	Leu	Thr	Leu	Ala	Glu	Ile	Gly	Val	Glu	Ser	Asp	Glu	Val	Gly	Leu
					210			215				220			
Ala	Asn	Ala	Gly	Ser	Thr	Val	Leu	Ala	Ser	Thr	Pro	Lys	Pro	Ala	Lys
					225			230				235			240

Thr Ala Gly Glu Lys Val Thr Asp Glu Gly Glu Gly Asn Gln Ile
245 250 255

Val Gln Tyr Leu Val Ala Gln Lys Ile Ile
260 265

<210> 154
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 154 ctgagatcta tgaacctacg gcgcc 25

<210> 155
<211> 35
<212> DNA
<213> Mycobacterium tuberculosis

<400> 155 ctcctatgg accctaggac ccgggcagcc ccggc 35

<210> 156
<211> 29
<212> DNA
<213> Mycobacterium tuberculosis

<400> 156 ctgagatcta tgaggctgtc gttgaccgc 29

<210> 157
<211> 30
<212> DNA
<213> Mycobacterium tuberculosis

<400> 157 ctccccgggc ttaatagttt ttgcaggagc 30

<210> 158
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 158 gcttagatct atgattttct gggcaaccag gta 33

<210> 159

<211> 30
<212> DNA
<213> **Mycobacterium tuberculosis**

<400> 159
gcttccatgg gcgaggcaca ggcgtggaa 30

<210> 160
<211> 30
<212> DNA
<213> **Mycobacterium tuberculosis**

<400> 160
ctgagatcta gaatgccaca ggaaactgtg 30

<210> 161
<211> 30
<212> DNA
<213> **Mycobacterium tuberculosis**

<400> 161
tctccgggg gtaactcaga gcgagcggac 30

<210> 162
<211> 27
<212> DNA
<213> **Mycobacterium tuberculosis**

<400> 162
ctgagatcta tgaacgtcac cgtatcc 27

<210> 163
<211> 27
<212> DNA
<213> **Mycobacterium tuberculosis**

<400> 163
tctccgggg ctcacccacc ggccacg 27

<210> 164
<211> 30
<212> DNA
<213> **Mycobacterium tuberculosis**

<400> 164
ctgagatcta tggcaacacg ttttatgacg 30

<210> 165

<210> 170
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<220>
<221> VARIANT
<222> (1)
<223> Thr could also be Ala

<400> 170
Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala Gly
1 5 10 15

<210> 171
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 171
Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp
1 5 10 15

<210> 172
<211> 404
<212> PRT
<213> Mycobacterium tuberculosis

<400> 172
Met Ala Thr Val Asn Arg Ser Arg His His His His His His His
1 5 10 15

Ile Glu Gly Arg Ser Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu
20 25 30

Gln Val Pro Ser Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln
35 40 45

Ser Gly Gly Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp Gly Leu Arg
50 55 60

Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe Glu
65 70 75 80

Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly Gln
85 90 95

Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala Gly
100 105 110

Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro Gln
115 120 125

Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala Ile
130 135 140

Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr His
145 150 155 160

Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp Pro
165 170 175

Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp Ala
180 185 190

Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro Ala
195 200 205

Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala Asn
210 215 220

Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu Leu
225 230 235 240

Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg Ser
245 250 255

Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly Gly His Asn
260 265 270

Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr Trp
275 280 285

Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu Gly
290 295 300

Ala Gly Lys Leu Ala Met Thr Glu Gln Gln Trp Asn Phe Ala Gly Ile
305 310 315 320

Glu Ala Ala Ala Ser Ala Ile Gln Gly Asn Val Thr Ser Ile His Ser
325 330 335

Leu Leu Asp Glu Gly Lys Gln Ser Leu Thr Lys Leu Ala Ala Ala Trp
340 345 350

145	150	155	160
Arg Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe			
165	170	175	
Glu Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly			
180	185	190	
Gln Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala			
195	200	205	
Gly Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro			
210	215	220	
Gln Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala			
225	230	235	240
Ile Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr			
245	250	255	
His Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp			
260	265	270	
Pro Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp			
275	280	285	
Ala Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro			
290	295	300	
Ala Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala			
305	310	315	320
Asn Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu			
325	330	335	
Leu Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg			
340	345	350	
Ser Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Gly Gly His			
355	360	365	
Asn Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr			
370	375	380	
Trp Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu			
385	390	395	400
Gly Ala Gly			

<210> 174

<211> 291

<212> DNA

<213> Mycobacterium tuberculosis

<400> 174

atgtcgacaa ttatgtacaa ctatccggcg atgatggctc atgccggga catggccgggt 60
tatgcgggca cgctgcagag cttgggggcc gatatcgcca gtgagcaggc cgtgctgtcc 120
agtgcgttgc agggtgatac cgggatcacg tattcaggct ggcagaccca gtggaaccag 180
gcccttagagg atctggtgcg ggcctatcag tcgatgtctg gcacccatga gtccaacacc 240
atggcgatgt tggctcgaga tggggccgaa gccgccaagt ggggcggcta g 291

<210> 175

<211> 96

<212> PRT

<213> Mycobacterium tuberculosis

<400> 175

Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Met Ala His Ala Gly
1 5 10 15

Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile
20 25 30

Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp Thr Gly
35 40 45

Ile Thr Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp
50 55 60

Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His Glu Ser Asn Thr
65 70 75 80

Met Ala Met Leu Ala Arg Asp Gly Ala Glu Ala Ala Lys Trp Gly Gly
85 90 95

<210> 176

<211> 363

<212> DNA

<213> Mycobacterium tuberculosis

<400> 176

gtgtcgaga gtatgtacag ctacccggcg atgacggcca atgtcgaga catggccggt 60
tatacggca cgacgcagag cttgggggcc gatatcgcca gtgagcgac cgcgcgtcg 120
cgtgcttgc aaggatct cggatgagt catcaggact ggcaggccca gtgaatcag 180
gccatggagg ctctcgccg ggcctaccgt cggtgccggc gagcaactacg ccagatcggg 240
gtgctggaaa ggccgttagg cgattcgtca gactgcggaa cgattaggtt gggtcgttc 300
cggggtcggt ggctggaccc gcgcattgcg ggtccagcca cggccgcga cgccggagac 360
taa 363

<210> 177

<211> 120

<212> PRT

<213> *Mycobacterium tuberculosis*

<400> 177

Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly
1 5 10 15

Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile
20 25 30

Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly
35 40 45

Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala
50 55 60

Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly
65 70 75 80

Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
85 90 95

Val Gly Ser Phe Arg Gly Trp Leu Asp Pro Arg His Ala Gly Pro
100 105 110

Ala Thr Ala Ala Asp Ala Gly Asp
115 120

<210> 178

<211> 297

<212> DNA

<213> *Mycobacterium tuberculosis*

<400> 178

atggcctcgc gtttatgac ggatccgcac gcgcgtgcggg acatggcggt ccgttttgag 60
gtgcacgccc agacggtgga ggacgaggct cgccggatgt gggcgtccgc gcaaaacatc 120

tcgggcgccc gctggagtgg catggccgag gcgacacctgc tagacaccat gacccagatg 180
aatcaggcggt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240
gacgccaaca actacgaaca gcaagagcag gcctcccagc agatcctcag cagctga 297

<210> 179

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 179

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 180

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 180

atggcctcac gtttatgac ggatccgac gcatggcggg acatggcggg ccgttttag 60
gtgcacgccc agacggtgg a gacgaggct cgccggatgt gggcgtccgc gaaaaacatt 120
tccggcggg gctggagtgg catggccgag gcatggcggg acatggcggg ccgttttag 180
aatcaggcggt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240
gacgccaaca actacgagca gcaagagcag gcctcccagc agatcctcag cagctaa 297

<210> 181

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 181

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Ala Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 182

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 182

atggcctcac gtttatgac ggatccgcat gcgcgcggg acatggcgaa ccgtttttag 60
gtgcacgccc agacgggtgga ggacgaggct cgccggatgt gggcgatccgc gcaaaaacatt 120
tccgggtcgaa gctggagtggtt catggccgag ggcacccatcg tagacaccat gaccttagatg 180
aatcaggcggt ttccgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240
gacgccaaca actacgaaca gcaagagcag gcctccagc agatcctgag cagctag 297

<210> 183

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 183

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 184

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 184

atgacctcgc gtttatgac ggatccgcac gcgtatgcggg acatggcgaa ccgtttttag 60
gtgcacgcggc agacgggtgg a g g a c g a g g g t c g c c g g a t g t g g g c t c c g c g c a a a a c a t t 120
tccggcgccg gctggagtggttgg catggccgag g c g a c c t c g c tagacaccat g a c c c a g a t g 180
aatcaggcgat ttgcgaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240
gacgccaaca actacgaaca gcaagagcag gcctcccagc agatcctcag cagctga 297

<210> 185

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 185

Met Thr Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 186
<211> 20
<212> DNA
<213> Mycobacterium tuberculosis

<400> 186 ggaatgaaaa ggggttttg 20
20

<210> 187
<211> 20
<212> DNA
<213> Mycobacterium tuberculosis

<400> 187 gaccacgccc ggcgcgttg 20
20

<210> 188
<211> 27
<212> DNA
<213> Mycobacterium tuberculosis

<400> 188 gcaacacccg ggatgtcgca gattatg 27
27

<210> 189
<211> 30
<212> DNA
<213> Mycobacterium tuberculosis

<400> 189 ctaagcttgg atcccttagcc gccccacttg 30
30

<210> 190
<211> 22
<212> DNA
<213> Mycobacterium tuberculosis

<400> 190 gaatatttga aagggattcg tg 22
22

<210> 191
<211> 30
<212> DNA
<213> Mycobacterium tuberculosis

<400> 191
ctactaagct tggatcctta gtctccggcg

30

<210> 192
<211> 27
<212> DNA
<213> Mycobacterium tuberculosis

<400> 192
gcaacacccg gggtgtcgca gagtatg

27

<210> 193
<211> 30
<212> DNA
<213> Mycobacterium tuberculosis

<400> 193
ctactaagct tggatcctta gtctccggcg

30

SEQUENCE LISTING

83

<110> Statens Serum Institut

5 <120> M. tuberculosis antigens

<130> 26166

10 <160> 64

<170> FastSEQ for Windows Version 3.0

15 <210> 194

<211> 381

<212> DNA

<213> Mycobacterium tuberculosis

<220>

20 <221> CDS

<222> (91) ... (378)

<400> 194

25 ggccgcgggt acctatgtgg ccgccgatgc tgccggacgcg tcgacctata ccgggttctg
atcgaaccct gctgaccgag aggacttgtg atg tcg caa atc atg tac aac tac
Met Ser Gln Ile Met Tyr Asn Tyr
1 5

60

114

30 ccc gcg atg ttg ggt cac gcc ggg gat atg gcc gga tat gcc ggc acg
Pro Ala Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr
10 15 20

162

35 ctg cag agc ttg ggt gcc gag atc gcc gtg gag cag gcc gcg ttg cag
Leu Gln Ser Leu Gly Ala Glu Ile Ala Val Glu Gln Ala Ala Leu Gln
25 30 35 40

210

40 agt gcg tgg cag ggc gat acc ggg atc acg tat cag gcg tgg cag gca
Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Ala Trp Gln Ala
45 50 55

258

45 cag tgg aac cag gcc atg gaa gat ttg gtg cggtt gat cat gcg atg
Gln Trp Asn Gln Ala Met Glu Asp Leu Val Arg Ala Tyr His Ala Met
60 65 70

306

50 tcc agc acc cat gaa gcc aac acc atg gcg atg atg gat cgc gac acc
Ser Ser Thr His Glu Ala Asn Thr Met Ala Met Met Ala Arg Asp Thr
75 80 85

354

55 gcc gaa gcc gcc aaa tgg ggc ggc tag
Ala Glu Ala Ala Lys Trp Gly Gly
90 95

381

<210> 195
<211> 96
<212> PRT

204

<213> Mycobacterium

tuberculosis

<400> 195

Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
5 1 5 10 15
Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile
20 25 30
Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp Thr Gly
35 40 45
10 Ile Thr Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp
50 55 60
Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His Glu Ala Asn Thr
65 70 75 80
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
15 85 90 95

<210> 196

<211> 363

<212> DNA

20 <213> Mycobacterium tuberculosis

<220>

<221> CDS

<222> (1)...(360)

25 <400> 196
gtg tcg cag agt atg tac agc tac ccg gcg atg acg gcc aat gtc gga 48
Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly
1 5 10 15
30 gac atg gcc ggt tat acg ggc acg acg cag agc ttg ggg gcc gat atc 96
Asp Met Ala Gly Tyr Thr Gly Thr Gln Ser Leu Gly Ala Asp Ile
20 25 30
35 gcc agt gag cgc acc gcg ccg tcg cgt gct tgc caa ggt gat ctc ggg 144
Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly
35 40 45
40 atg agt cat cag gac tgg cag gcc cag tgg aat cag gcc atg gag gct 192
Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala
50 55 60
45 ctc gcg ccg gcc tac cgt cgg tgc cgg cga gca cta cgc cag atc ggg 240
Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly
65 70 75 80
50 gtg ctg gaa agg ccg gta ggc gat tcg tca gac tgc gga acg att agg 288
Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
85 90 95
55 gtg ggg tcg ttc cgg ggt cgg tgg ctg gac ccg cgc cat gcg ggt cca 336
Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro
100 105 110
55 gcc acg gcc gcc gac gcc gga gac taa 363
Ala Thr Ala Ala Asp Ala Gly Asp

305

115

120

5 <210> 197
<211> 120
<212> PRT
<213> Mycobacterium tuberculosis

10 <400> 197
Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly
1 5 10 15
Asp Met Ala Gly Tyr Thr Gly Thr Gln Ser Leu Gly Ala Asp Ile
20 25 30
Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly
15 35 40 45
Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala
50 55 60
Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly
65 70 75 80
20 Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
85 90 95
Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro
100 105 110
Ala Thr Ala Ala Asp Ala Gly Asp
25 115 120

30 <210> 198
<211> 291
<212> DNA
<213> Mycobacterium tuberculosis

35 <220>
<221> CDS
<222> (1)...(288)

40 <400> 198
atg tcg cag att atg tac aac tat ccg gcg atg atg gct cat gcc ggg 48
Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Met Ala His Ala Gly
1 5 10 15

45 gac atg gcc ggt tat gcg ggc acg ctg cag agc ttg ggg gcc gat atc 96
Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile
20 25 30

50 gcc agt gag cag gcc gtg ctg tcc agt gct tgg cag ggt gat acc ggg 144
Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp Thr Gly
35 40 45

55 atc acg tat cag ggc tgg cag acc cag tgg aac cag gcc cta gag gat 192
Ile Thr Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp
50 55 60

55 ctg gtg cgg gcc tat cag tcg atg tct ggc acc cat gag tcc aac acc 240
Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His Glu Ser Asn Thr
65 70 75 80

486

§ 87

<210> 202
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

5 <220>
<221> CDS
<222> (1)...(60)

10 <400> 202
atg atg gct cat gcc ggg gac atg gcc ggt tat gcg ggc acg ctg cag 48
Met Met Ala His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln
1 5 10 15

15 agc ttg ggg gcc 60
Ser Leu Gly Ala
20

20 <210> 203
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

25 <400> 203
Met Met Ala His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln 48
1 5 10 15
Ser Leu Gly Ala
20

30 <210> 204
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

35 <220>
<221> CDS
<222> (1)...(60)

40 <400> 204
tat gcg ggc acg ctg cag agc ttg ggg gcc gat atc gcc agt gag cag 48
Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Gln
1 5 10 15

45 gcc gtg ctg tcc 60
Ala Val Leu Ser
20

50 <210> 205
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

55 <400> 205
Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Gln

88
50

1		5		10		15
---	--	---	--	----	--	----

Ala Val Leu Ser
20

5 <210> 206
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

10 <220>
<221> CDS
<222> (1)...(60)

<400> 206

15 gat atc gcc agt gag cag gcc gtg ctg tcc agt gct tgg cag ggt gat 48
Asp Ile Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp
1 5 10 15

20 acc ggg atc acg 60
Thr Gly Ile Thr
20

25 <210> 207
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 207

30 Asp Ile Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp 60
1 5 10 15
Thr Gly Ile Thr
20

35 <210> 208
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

40 <220>
<221> CDS
<222> (1)...(60)

<400> 208

45 agt gct tgg cag ggt gat acc ggg atc acg tat cag ggc tgg cag acc 48
Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Gly Trp Gln Thr
1 5 10 15

50 cag tgg aac cag 60
Gln Trp Asn Gln
20

55 <210> 209
<211> 20
<212> PRT

709

<213> Mycobacterium

tuberculosis

<400> 209

Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Gly Trp Gln Thr
5 1 5 10 15
Gln Trp Asn Gln
20

<210> 210

10 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

15 <221> CDS
<222> (1)...(60)

<400> 210

20 tat cag ggc tgg cag acc cag tgg aac cag gcc cta gag gat ctg gtg 48
Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp Leu Val
1 5 10 15

cgg gcc tat cag
Arg Ala Tyr Gln

60

20

<210> 211

30 <211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 211

35 Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp Leu Val
1 5 10 15
Arg Ala Tyr Gln
20

<210> 212

40 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

45 <221> CDS
<222> (1)...(60)

<400> 212

50 gcc cta gag gat ctg gtg cgg gcc tat cag tcg atg tct ggc acc cat 48
Ala Leu Glu Asp Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His
1 5 10 15

gag tcc aac acc
Glu Ser Asn Thr

60

20

890

<210> 213
<211> 20
<212> PRT
5 <213> Mycobacterium tuberculosis

<400> 213
Ala Leu Glu Asp Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His
1 5 10 15

10 Glu Ser Asn Thr
20

<210> 214
<211> 60
15 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
20 <222> (1)...(60)

<400> 214
tcg atg tct ggc acc cat gag tcc aac acc atg gcg atg ttg gct cga 48
Ser Met Ser Gly Thr His Glu Ser Asn Thr Met Ala Met Leu Ala Arg
25 1 5 10 15

gat ggg gcc gaa 60
Asp Gly Ala Glu
20

30

<210> 215
<211> 20
<212> PRT
35 <213> Mycobacterium tuberculosis

<400> 215
Ser Met Ser Gly Thr His Glu Ser Asn Thr Met Ala Met Leu Ala Arg
1 5 10 15

40 Asp Gly Ala Glu
20

<210> 216
<211> 48
45 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
50 <222> (1)...(48)

<400> 216
atg gcg atg ttg gct cga gat ggg gcc gaa gcc gcc aag tgg ggc ggc 48
Met Ala Met Leu Ala Arg Asp Gly Ala Glu Ala Ala Lys Trp Gly Gly
55 1 5 10 15

<210> 217
 <211> 16
 <212> PRT
 5 <213> Mycobacterium tuberculosis

 <400> 217
 Met Ala Met Leu Ala Arg Asp Gly Ala Glu Ala Ala Lys Trp Gly Gly
 1 5 10 15
 10 <210> 218
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis
 15 <220>
 <221> CDS
 <222> (1)...(54)

 20 <400> 218
 atg tcg caa atc atg tac aac tac ccc gcg atg ttg ggt cac gcc ggg 48
 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
 1 5 10 15
 25 gat atg 54
 Asp Met

 30 <210> 219
 <211> 18
 <212> PRT
 <213> Mycobacterium tuberculosis

 35 <400> 219
 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
 1 5 10 15
 Asp Met

 40 <210> 220
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis
 45 <220>
 <221> CDS
 <222> (1)...(54)

 50 <400> 220
 atg ttg ggt cac gcc ggg gat atg gcc gga tat gcc ggc acg ctg cag 48
 Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln
 1 5 10 15

 55 agc ttg 54
 Ser Leu

10-92

5 <210> 221
<211> 18
<212> PRT
<213> Mycobacterium tuberculosis

10 <400> 221
Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln
1 5 10 15
Ser Leu ,

15 <210> 222
<211> 54
<212> DNA
<213> Mycobacterium tuberculosis

20 <220>
<221> CDS
<222> (1)...(54)

25 <400> 222
tat gcc ggc acg ctg cag agc ttg ggt gcc gag atc gcc gtg gag cag 48
Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile Ala Val Glu Gln
1 5 10 15

30 gcc gcg 54
Ala Ala

35 <210> 223
<211> 18
<212> PRT
<213> Mycobacterium tuberculosis

40 <400> 223
Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile Ala Val Glu Gln
1 5 10 15
Ala Ala

45 <210> 224
<211> 54
<212> DNA
<213> Mycobacterium tuberculosis

50 <220>
<221> CDS
<222> (1)...(54)

55 <400> 224
gag atc gcc gtg gag cag gcc gcg ttg cag agt gcg tgg cag ggc gat 48
Glu Ile Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp

7493

1 5 10 15 54
acc ggg
Thr Gly
5

10 <210> 225
<211> 18
<212> PRT
<213> Mycobacterium tuberculosis

15 <400> 225
Glu Ile Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp
1 5 10 15
Thr Gly

20 <210> 226
<211> 54
<212> DNA
<213> Mycobacterium tuberculosis

25 <220>
<221> CDS
<222> (1)...(54)
<223>

30

35 <400> 226
agt gcg tgg cag ggc gat acc ggg atc acg tat cag gcg tgg cag gca 48
Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Ala Trp Gln Ala
1 5 10 15

40 cag tgg 54
Gln Trp

45 <210> 227
<211> 18
<212> PRT
<213> Mycobacterium tuberculosis

50 <400> 227
Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Ala Trp Gln Ala
1 5 10 15
Gln Trp

55 <210> 228
<211> 51

7294

<212> DNA
<213> Mycobacterium tuberculosis

5 <220>
 <221> CDS
 <222> (1)...(51)
 <223>

10

 <400> 228
15 tat cag gcg tgg cag gca cag tgg aac cag gcc atg gaa gat ttg gtg 48
Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp Leu Val
1 5 15

20 cgg 51
Arg
20

25 <210> 229
 <211> 17
 <212> PRT
 <213> Mycobacterium tuberculosis

 <400> 229
30 Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp Leu Val
1 5 15
Arg

35 <210> 230
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis

40 <220>
 <221> CDS
 <222> (1)...(54)

 <400> 230
45 gcc atg gaa gat ttg gtg cg gcc tat cat gcg atg tcc agc acc cat 48
Ala Met Glu Asp Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His
1 5 15

50 gaa gcc 54
Glu Ala

55 <210> 231
 <211> 18
 <212> PRT
 <213> Mycobacterium tuberculosis

1895

<400> 231
Ala Met Glu Asp Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His
1 5 10 15
5 Glu Ala

<210> 232
<211> 54
10 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
15 <222> (1)...(54)

<400> 232
gcg atg tcc agc acc cat gaa gcc aac acc atg gcg atg atg gcc cgc 48
Ala Met Ser Ser Thr His Glu Ala Asn Thr Met Ala Met Met Ala Arg
20 1 5 10 15

gac acg 54
Asp Thr

25

<210> 233
<211> 18
<212> PRT
30 <213> Mycobacterium tuberculosis

<400> 233
Ala Met Ser Ser Thr His Glu Ala Asn Thr Met Ala Met Met Ala Arg
1 5 10 15
35 Asp Thr

<210> 234
<211> 48
40 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
45 <222> (1)...(48)

<400> 234
atg gcg atg atg gcc cgc gac acc gcc gaa gcc gcc aaa tgg ggc ggc 48
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
50 1 5 10 15

<210> 235
<211> 16
<212> PRT
55 <213> Mycobacterium tuberculosis

1496

<400> 235
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
1 5 10 15

5 <210> 236
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

10 <220>
<221> CDS
<222> (1)...(60)

<400> 236
15 gtg tcg cag agt atg tac agc tac ccg gcg atg acg gcc aat gtc gga 48
Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly
1 5 10 15

20 gac atg gcc ggt 60
Asp Met Ala Gly
20

25 <210> 237
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 237
30 Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly 48
1 5 10 15
Asp Met Ala Gly
20

35 <210> 238
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

40 <220>
<221> CDS
<222> (1)...(60)

<400> 238
45 atg acg gcc aat gtc gga gac atg gcc ggt tat acg ggc acg acg cag 48
Met Thr Ala Asn Val Gly Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln
1 5 10 15

50 agc ttg ggg gcc 60
Ser Leu Gly Ala
20

55 <210> 239
<211> 20
<212> PRT

1597

<213> Mycobacterium

tuberculosis

<400> 239

Met Thr Ala Asn Val Gly Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln
5 1 5 10 15
Ser Leu Gly Ala
20

<210> 240

10 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

15 <221> CDS
<222> (1)...(60)

<400> 240

20 tat acg ggc acg acg cag agc ttg ggg gcc gat atc gcc agt gag cgc 48
Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Arg
1 5 10 15

acc gcg ccg tcg
Thr Ala Pro Ser

60

20

<210> 241

30 <211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 241

35 Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Arg
1 5 10 15
Thr Ala Pro Ser
20

<210> 242

40 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

45 <221> CDS
<222> (1)...(60)

<400> 242

50 gat atc gcc agt gag cgc acc gcg ccg tcg cgt gct tgc caa ggt gat 48
Asp Ile Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp
1 5 10 15

ctc ggg atg agt
Leu Gly Met Ser

60

20

1699

<210> 243
<211> 20
<212> PRT
5 <213> Mycobacterium tuberculosis

<400> 243
Asp Ile Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp
1 5 10 15
10 Leu Gly Met Ser
20

<210> 244
<211> 60
15 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
20 <222> (1)...(60)

<400> 244
cgt gct tgc caa ggt gat ctc ggg atg agt cat cag gac tgg cag gcc 48
Arg Ala Cys Gln Gly Asp Leu Gly Met Ser His Gln Asp Trp Gln Ala
25 1 5 10 15

cag tgg aat cag 60
Gln Trp Asn Gln
20
30

<210> 245
<211> 20
<212> PRT
35 <213> Mycobacterium tuberculosis

<400> 245
Arg Ala Cys Gln Gly Asp Leu Gly Met Ser His Gln Asp Trp Gln Ala
1 5 10 15
40 Gln Trp Asn Gln
20

<210> 246
<211> 60
45 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
50 <222> (1)...(60)

<400> 246
cat cag gac tgg cag gcc cag tgg aat cag gcc atg gag gct ctc gcg 48
His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala Leu Ala
55 1 5 10 15

17 99

cg_g g_cc tac cgt 60
 Arg Ala Tyr Arg
 20

5 <210> 247
 <211> 20
 <212> PRT
 <213> Mycobacterium tuberculosis

10 <400> 247
 His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala Leu Ala
 1 5 10 15
 Arg Ala Tyr Arg
 20

15 <210> 248
 <211> 60
 <212> DNA
 <213> Mycobacterium tuberculosis

20 <220>
 <221> CDS
 <222> (1) ... (60)

25 <400> 248
 g_cc at_g gag g_ct ctc g_cg cgg g_cc tac cgt cgg tgc cgg c_ga g_ca ct_a
 Ala Met Glu Ala Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu
 1 5 10 15

30 cgc cag atc g_gg
 Arg Gln Ile Gly
 20

35 <210> 249
 <211> 20
 <212> PRT
 <213> Mycobacterium tuberculosis

40 <400> 249
 Ala Met Glu Ala Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu
 1 5 10 15
 Arg Gln Ile Gly
 20

45 <210> 250
 <211> 60
 <212> DNA
 <213> Mycobacterium tuberculosis

50 <220>
 <221> CDS
 <222> (1) ... (60)

55 <400> 250

18 100

cgg tgc cgg cga gca cta cgc cag atc ggg gtg ctg gaa agg ccg gta 48
Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly Val Leu Glu Arg Pro Val
1 5 10 15

5 ggc gat tcg tca 60
Gly Asp Ser Ser
20

10 <210> 251
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

15 <400> 251
Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly Val Leu Glu Arg Pro Val
1 5 10 15
Gly Asp Ser Ser
20

20 <210> 252
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

25 <220>
<221> CDS
<222> (1)...(60)

30 <400> 252 48
gtg ctg gaa agg ccg gta ggc gat tcg tca gac tgc gga acg att agg
Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
1 5 10 15

35 gtg ggg tcg ttc 60
Val Gly Ser Phe
20

40 <210> 253
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

45 <400> 253
Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
1 5 10 15
Val Gly Ser Phe
20

50 <210> 254
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

55 <220>

19 101

<221> CDS
<222> (1)...(60)

<400> 254

5 gac tgc gga acg att agg gtg ggg tcg ttc cgg ggt cgg tgg ctg gac 48
Asp Cys Gly Thr Ile Arg Val Gly Ser Phe Arg Gly Arg Trp Leu Asp
1 5 10 15

ccg cgc cat gcg
10 Pro Arg His Ala
20

60

<210> 255

15 <211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 255

20 Asp Cys Gly Thr Ile Arg Val Gly Ser Phe Arg Gly Arg Trp Leu Asp
1 5 10 15
Pro Arg His Ala
20

<210> 256

25 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

30 <220>
<221> CDS
<222> (1)...(60)

<400> 256

35 ccg ggt cgg tgg ctg gac ccg cgc cat gcg ggt cca gcc acg gcc gcc 48
Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro Ala Thr Ala Ala
1 5 10 15

gac gcc gga gac
40 Asp Ala Gly Asp
20

60

<210> 257

45 <211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 257

50 Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro Ala Thr Ala Ala
1 5 10 15
Asp Ala Gly Asp
20